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DRUG ADDICTION—A WORLD-WIDE PROBLEM

PAUL WOLFF, M.D. PH.D.
BERLIN, GERMANY

The pursuit of intoxication, the search for a means of invoking a condition of unimagined bliss, though it be but a bitter self-deception, a paltry fool's paradise, is a goal which even the most primitive peoples have sought and found. At all times and in all places, in the days of Homer, under the tropical sun and in the regions of eternal snow alike, mankind has found methods of attaining this "holy," god-given madness. So long as narcotics remained the secret of the priesthood, they were of little danger to mankind in general. In more modern times, the explanation and popularization of hitherto sacred usages, the expansion of science, the extension of our knowledge and experience and, above all, the enormous advances made in the last hundred and fifty years in the medical and natural sciences have brought about a change. A few of the milestones in the development of medicine include the isolation of morphine by Sertürner in 1806, the ingenious invention of its subcutaneous injection in 1853 by Wood, whose first experiments on injection were carried out with a solution of morphine, and the introduction into medical practice of cocaine, the anesthetic properties of which were known in 1860 but which curiously enough was not used therapeutically until Koller, a Viennese physician who found his second home in the United States, first employed it clinically in 1884. This triumph of rational therapy based on the results of experimental and clinical research had, however, its darker side in the growth and extension of drug addiction. Among the many bitter legacies of the World War and postwar times, not the least difficult to combat was this scourge. New problems constantly arose to be solved. As a result, many medical and social questions were once again revived or brought into greater prominence. Through careful scientific investigation many phenomena, for instance the rapidly increasing incidence of cocaine addiction, took on a new aspect. Older problems were examined in a fresh light and were measured by newer and more rational standards.

Drug addiction is a colorful picture of varied perspective. In this field practical medicine must work in the closest possible collaboration with legislation and justice in order that useful progress may be made, in the interest not only of individual patients but also of the health and sanity of the race as a whole. The economist, too, should have his place in the council chamber, for drug addicts are not only a source of leakage from the ranks of producers and consumers but also a permanent burden on the national exchequer.

It is hygiene, in the best sense of the word, that must here be practiced. From the physician it demands much effort and knowledge and a full sense of responsibility. He must not be beguiled by false sympathy into prescribing habit-forming drugs to individual addicts. It is his special duty to institute a withdrawal cure and thus perform his part in freeing the world from a plague which in many places has become an epidemic. Should the term epidemic seem too bold, it is only necessary to consider how many members of our own profession in every country have been attacked by the "virus" of drug addiction; how many meritorious physicians and research workers in this field have succumbed to its seductive influence in spite of all their knowledge and, one hesitates to say it, by a seemingly irresistible chain of events, have found in it their ruin.

A few figures will suffice to support this disturbing contention. Out of 100 male morphine addicts, Oppenheim, the late Berlin neurologist, found in prewar times 42 physicians, the Munich psychiatrist Kraepelin 10 out of 42 addicts, and E. Meyer 21 out of 64 addicts, apart from members of associated professions, such as nurses and dispensers. Similar figures are given by other clinicians. In postwar times the percentage of the total number of addicts represented by medical men has considerably decreased but it is nevertheless still high enough. According to recent statistics (1928) the number of physicians in Germany who personally consume a tenth of a gram or more of morphine daily is about 500; that is to say, roughly 1 per cent of the profession.[1]

The medical addict forms a source of danger in that his addiction may lead him to prescribe his favorite drug too lightly for his patients without exercising rigorous judgment from the medical standpoint as to the real need for it. Such a condition is not far removed from proselytism, and the physician who no longer fully realizes the sacred nature of his professional responsibility may form the nucleus of a colony of addicts, quite apart from the so-called script doctors, who have shown themselves entirely unworthy representatives of our profession. At this point, however, it is necessary to emphasize the fact that there are many physicians of high standing and worthy achievement who are to a certain extent morphine addicts but who nevertheless carry out their duty in every possible way and who prescribe opiates and cocaine solely in accordance with the strictest rules of medical practice. Apart altogether from legal procedures connected with

Clinical lecture, read at the Eighty-Third Annual Session of the American Medical Association, New Orleans, May 9, 1932.

1. Pohlisch: Die Verbreitung des chronischen Opiatmissbrauchs in Deutschland, Monatsschr. f. Psychiat. 79, number 1, 1931; also brochure, Berlin, S. Karger.

transgressions of the law, it is necessary in all countries to introduce a system whereby those physicians whose addiction has rendered them dangerous to the community should be deprived of their licenses; such a regulation will shortly be enforced in Germany.

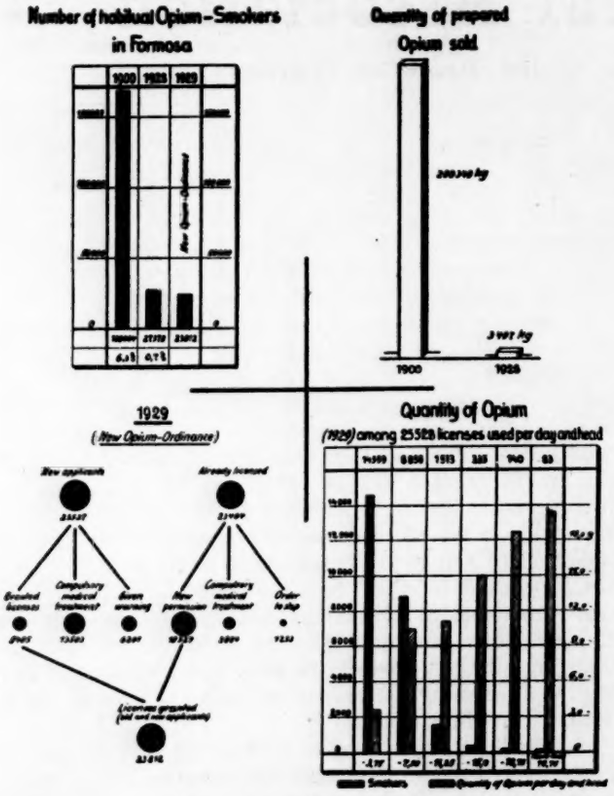

Fig. 1.—Opium in Formosa.

NARCOTIC ADDICTION THROUGHOUT THE WORLD

In order to demonstrate clearly the universal nature of the problem of drug addiction, it is necessary to review briefly the situation in various countries. It is not easy to make a selection but I must of necessity content myself with the description of only a few scenes from the world panorama. For the present purpose, therefore, I will briefly outline the conditions in China, Formosa, British India and Egypt. Of the European countries, Germany will be particularly discussed.

In 1907 the hope was cherished that it would be possible over a period of ten years to obliterate entirely both the internal production in China itself and the importation of opium from India, so that in 1917 the problem would have been in a large measure solved. In the meantime, however, internal political changes have taken place which are today occupying the attention of the whole world and which permit the continued existence of the opium scourge. We are not concerned here with political questions except so far as they concern narcotic addiction. While the cultivation of opium is technically forbidden, the army continues to demand it. According to what one reads and hears, many of the Chinese military authorities of the most various political parties are themselves extensive dealers in opium and the legally introduced fines have degenerated into a system of licenses. In addition, a severe abuse of morphine has arisen in the distribution of diacetylmorphine. It has been observed that the Chinese soldiers roll themselves cigarets from tobacco with which diacetylmorphine powder is mixed. The coolies preferably submit to an injection of morphine, since this produces the desired effect more quickly and cheaply than the smoking of opium, which takes up much more of their working hours. The placards of the Chinese Anti-Opium Association are eloquent, but the campaign seems to be somewhat too idealistic and at present bereft of any great effect in the desired direction. The restoration of political stability within the country itself would undoubtedly lead to better conditions. Chinese physicians who have studied in European or American universities are entirely in agreement with our attitude toward drug addiction.

As a contrast to the indefinite position in China, it is interesting to note the gradual reclamation of a Chinese population in the island of Formosa,[2] which is under Japanese control. In this territory, certain sections of the population are granted a license to smoke opium and the individual smokers are controlled. A complete census has been maintained and, as will be seen from figure 1, the number of smokers reached 6.3 per cent of the population in 1900 and 0.7 per cent in 1928; that is to say, it has been reduced to one ninth in twenty-eight years. Parallel with this, the amount of opium sold for smoking purposes has been reduced to one sixtieth of the former consumption. In

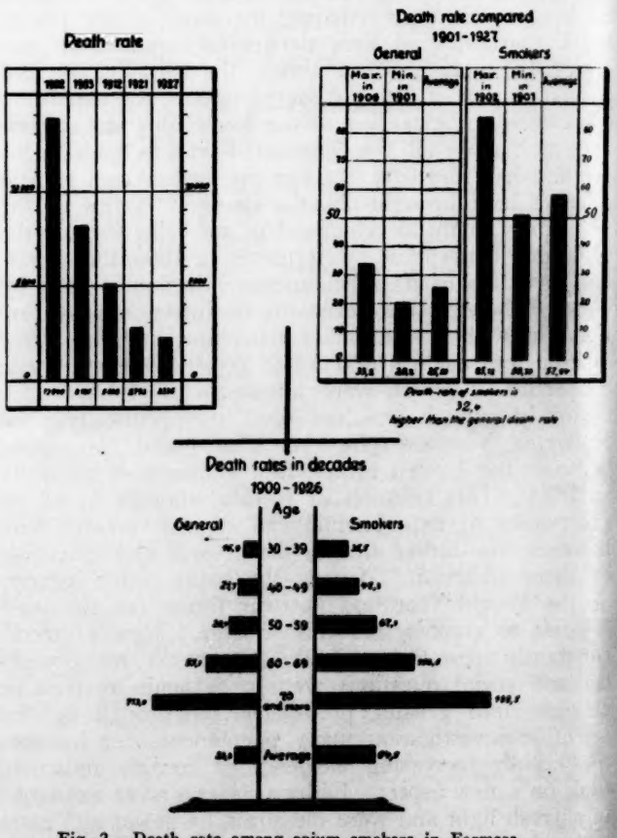

Fig. 2.—Death rate among opium smokers in Formosa.

1929 a new opium ordinance was issued and the old applicants for licenses were sifted out from the new and hitherto unlicensed candidates. It will also be noticed (fig. 1) that a considerable number of new applicants were obliged to undergo a compulsory "with-

2. Commission of Enquiry into the Control of Opium Smoking in the Far East, League of Nations, Geneva, 1930, volume 1. Tu: Statistical Studies on Opium Addiction in Formosa, Jap. J. M. Sc. Tr. IV, Pharmacol. 5: 48-52, 1931.

drawal" cure, Formosa being the only country where such a measure is legally enforced. From the old applicants, although the majority received new licenses, some were refused permission to continue opium smoking. Further, others were warned off, so that the combined number of old and new applicants was

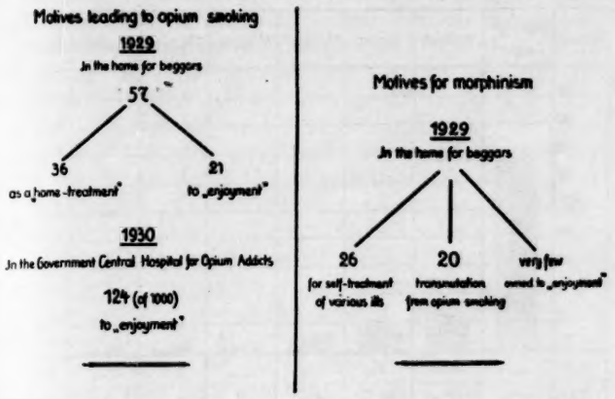

Fig. 3.—Motives leading to opium smoking and to morphinism in Formosa.

roughly the same as the number of previous license holders, instead of showing an increase to twice this figure. In addition, it will be seen that the majority of smokers get along with a minimum quantity of opium and that appreciable quantities are allowed only to a rapidly diminishing number of addicts. It may be of interest to compare these figures with American experience in the reformation of another island, the Philippines. The fact that the death rate among opium smokers is much greater than the average for the same population is borne out by the literature (fig. 2). The mortality among smokers is in fact 32 per thousand higher than the general death rate, and this relationship is essentially similar throughout the various age periods. The origin of opium addiction in the lowest social strata is in large measure due to the fact that here, as in other Asiatic countries, opium is considered as a "home remedy" (fig. 3). Nevertheless the euphoric effect undoubtedly plays a certain part.

It is curious that in another closely related population, namely, the Japanese, addiction is unknown as a national practice.

In British India opium eating is also endemic[3] although, as far as we know, it is decreasing rapidly, at least as far as the production of the drug goes. A stringent control is being exercised, which, however, is largely vitiated by the fact that the semi-independent native states have preserved their independence in this respect. Since 1926, public auctions of opium in Calcutta have ceased to take place. According to a resolution of the government, the export of opium to the Far East, apart from supplies destined for medical or scientific purposes, will have ceased within ten years; that is to say, at the end of 1935. So long, however, as opium is manufactured in quantities far in excess of those required for these serious purposes, the prevention of illegal traffic is impossible. At the same time the retail prices have been raised, a measure which will perhaps also contribute to the suppression of the habit. A more serious and, medically considered, incredible fact is the Indian mothers' custom of giving opium to their children to prevent them from crying and to insure that they sleep and are quiet while the mother is at work; further, opium is held in such high esteem that it is administered to children with the intention of rendering them fat and strong! The superstition that centers around the poppy juice forms a great obstacle to its removal, as do many other external factors which can be fought only with difficulty. A nation will not readily give up a household remedy.

Curiously enough, opium smoking is not customary in India. On the other hand, a certain special form of addiction is practiced which, as far as I know, is peculiar to India. It consists of the use of the intact capsules of Papaver somniferum—the so-called "post." This practice is confined to the Punjab, where there is a total of only 6,500 addicts. The fresh poppy heads are thoroughly macerated with water and the resulting fluid is swallowed. In contradistinction to opium addiction, "post" is preferably taken in company with others, and among the lower classes "clubs" exist for this purpose. This form of opium consumption is cheaper and is not subject to control. It exists solely as a habit, and is not used medically. The effect, which appears in some twenty or thirty minutes, is said to be more markedly euphoric than that of opium eating. The morphine content of the liquid is relatively small in relation to the larger quantities of narcotine, codeine

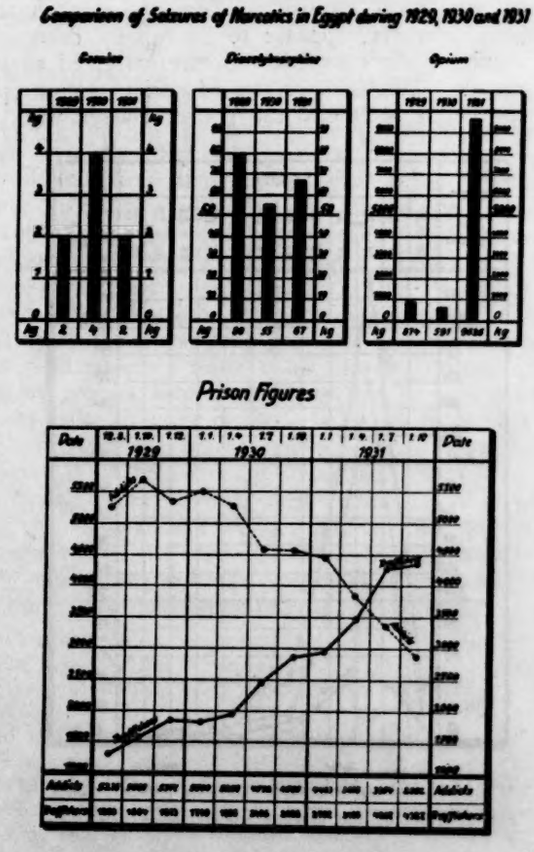

Fig. 4.—Narcotics in Egypt.

and papaverine that it contains. To a certain extent this beverage is used as a "household remedy," though never in serious illness. It is far more popular as a "society drink" as a euphoric and as a substitute for alcohol among manual workers. I have described this unusual form of addiction in some detail since, in spite

3. Chopra, R. N.: The Present Position of the Opium Habit in India, Indian J. M. Research 16: 389 (Oct.) 1928.

4. Chopra, R. N.; Grewal, K. S.; Chowhan, J. S., and Chopra, G. S.: Addiction to "Post" in India, Indian J. M. Research 17: 985 (April) 1930.

of its limited occurrence, it represents an interesting divergence from the usual methods of opium consumption. The effect is weaker and of shorter duration, as might be expected from its composition. It is more an excitant than a sedative and has a less marked effect on the alimentary tract. It has a more pronounced diuretic action and a certain restorative effect. The addicts show pronounced loss of memory, and in spite of the small morphine content considerable physical, mental and moral degeneration sets in. While an opium addict taking small doses may not be easily differentiated from a normal individual, a person taking even small quantities of "post" at once gives himself away —so much so that in the Punjab a lazy, slovenly, dull and unintelligent-looking person is often called a "posti." The results of abstinence recall to a great extent those observed with opium withdrawal. The habit becomes deeply ingrained. "Post" addiction thus forms an interesting variation in drug addiction which is fortunately not widely spread.

Finally, a glimpse into the conditions existing in a part of North Africa, Egypt.[5] The cradle of civilization has become the chief battlefield in the fight against the trade in illegal drugs. Russell Pasha, the chief of the Cairo police, recently stated that among a population of 14 millions, there are, at a moderate estimate, some half a million addicts. This figure includes, however, the many hashish smokers, the total number of whom, however, appears to be rapidly decreasing as a result of the energetic measures directed against the practice. While all classes of society suffer from the scourge, it is chiefly the poorer classes who are

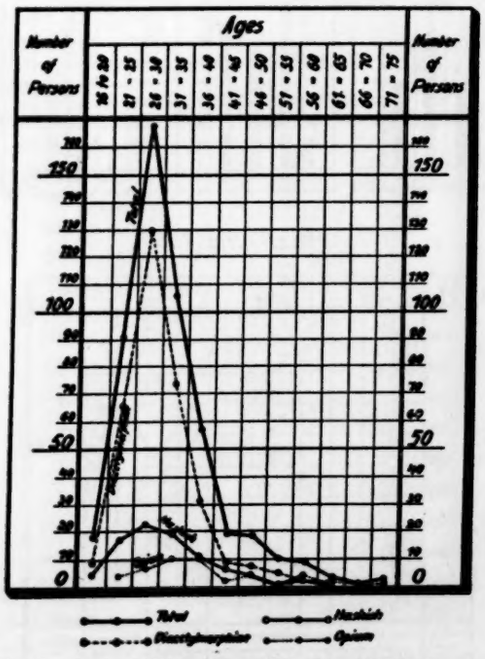

Fig. 5.—Ages of 500 prisoner addicts in 1931 in Egypt.

involved. In the central prison there is at the present time a constant population of some 7,000 addicts and dealers sentenced for participation in drug traffic. In all necessary cases these prisoners receive medical treatment in the form of withdrawal cures. It is interesting to note from figure 4 that, while the number of addicts has fallen considerably, the number of dealers has risen.

5. Egyptian Government, Central Narcotics Intelligence Bureau, Annual Report for the years 1929, 1930, 1931. Wolff (footnote 10).

Whereas in two years the number of persons convicted for trafficking has increased nearly threefold, the number of persons sentenced for addiction has fallen by 50 per cent. The same causes as in 1930 have been helping in 1931 to bring about this reduction in addiction: adulteration is so high that dope is

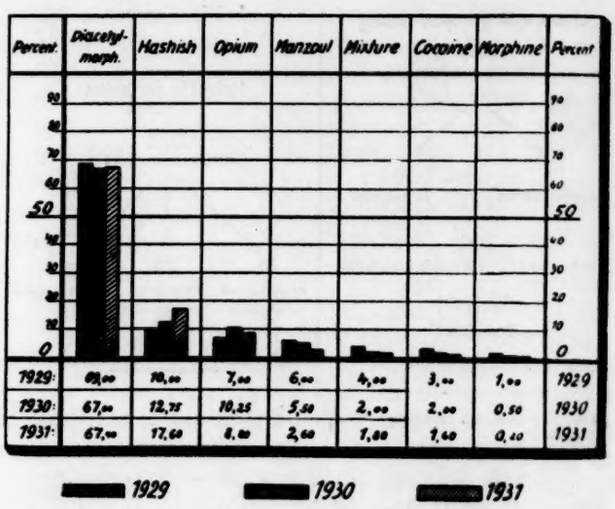

Fig. 6.—Drugs to which 200 Egyptians in 1929, 400 in 1930 and 500 in 1931 were addicted. Manzoul consists of a mixture of hashish, dry spices and herbs.

hardly worth buying, and money is so scarce that the fellahs can no longer afford to waste it on drugs that give no kick.

The effectiveness of the methods of control will be obvious from figures 4, 5 and 6, from which it will also be seen that diacetylmorphine plays by far the most important rôle, while the success of the measures against opium consumption is equally evident. In this country cocaine is only of slight importance. Diacetylmorphine is particularly favored by Orientals as it is thought to be an excellent aphrodisiac, though actually it exercises this effect only in the earliest stages of addiction.

Hashish is again becoming a big problem. This increase of hashish smuggling (from Syria, further supplies are now being smuggled in from Turkey and perhaps Yugoslavia) is, however, a clear sign of the increased difficulties in obtaining the white drugs. I believe that figures 4, 5, 6, 7 and 8 give a clear indication of the situation today in Egypt. Addiction to white drugs, though still terribly prevalent, is not as widespread as before. Hundreds and thousands of people, possibly formerly honest, have been tempted into trafficking by the profits to be made and are now paying the penalty. This illustrates that the damage done to a country by drug addiction is not merely the medical damage done to the addicts but is the much more serious harm done by the widespread corruption introduced by it into all classes of society.

The remaining charts confirm the experience gained in our own territories. The majority of addicts are in the prime of life; i. e., from 20 to 40 years of age, although children of 11 to 15 and even 6 to 10 years are also found. Addiction lasts as a rule from two to five years. As before stated, diacetylmorphine occupies the most prominent position, a point also borne out by analysis of the various age decades.

A further improvement in the conditions is to be expected, now that Turkey has at last introduced a control of internal production. It has been subse-

quently shown that enormous quantities of diacetylmorphine were manufactured in Turkey, the export of which not only to Egypt but also to Europe and the United States was attempted.

It will thus be seen that there are many strongholds of the drug traffic and of drug addiction which remain to be seized. The front line of attack against these fortresses must be occupied by the medical profession.

As to the position in Europe there is little to add. According to our present knowledge, the general impression is that addiction is in all respects on the decline. Occasional cases of smuggling on a large scale, which provide sensational reports for the daily press, need not deter the physician from arriving at this conclusion. Great Britain, for instance, has exceptionally few alkaloid addicts, a fact of which I am constantly receiving fresh confirmation. Drug addiction has for her ceased to be an acute problem and conditions are probably much the same in Norway, Sweden and Denmark. As to the position in France there is little information. At the present time scientific investigations in this field are being carried out chiefly in the German speaking countries. The new Austrian legislation is unfortunately all too lenient, with the result that Vienna has become a center of smuggling. The Egyptian government has recently protested against this state of affairs. Thus, once again the close interdependence of the various countries is emphasized and the universal nature of the problem of drug addiction demonstrated.

THE SITUATION IN GERMANY

In Germany the number of addicts has unquestionably greatly declined, as is shown by the decrease in

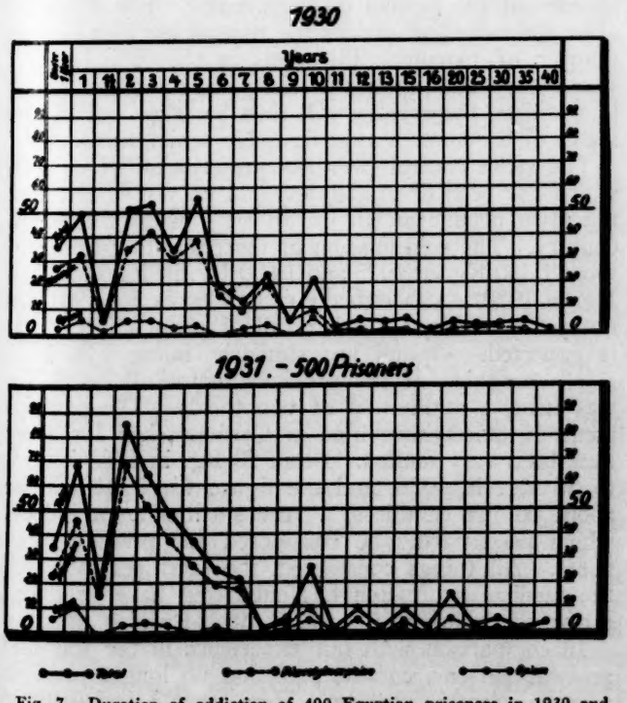

Fig. 7.—Duration of addiction of 400 Egyptian prisoners in 1930 and of 500 in 1931.

the number of morphine and cocaine addicts arrested in public resorts (fig. 9). According to exact calculations made in 1928, the number of addicts, so far as the needs of these individuals are covered by medical prescriptions, varies from 4,000 to 6,000 in a total population of about 64 millions.[1] Through the "opium department" of the health office of the *reich* (reichsgesundheitsamt) it is possible for the government to obtain an extensive survey of the whole traffic in these substances and to exercise a control over prescriptions. Somewhat more than a year ago a decisive step forward was made. In full agreement with the German medical profession, the government has introduced a system of stringent restrictions:[6] Before ordering any substance covered by the German opium law (drawn up in accordance with the international convention), every physician is in duty bound to ascertain whether, according to the strictest medical principles, the prescription of the drug is definitely necessary.[7] The handing over of the substance itself is absolutely forbidden, and a pharmacist is not allowed to make up a prescription containing more than one opiate. Further, all these substances may not be present in a mixture in more than a certain percentage. For each patient, up to 0.2 Gm. of morphine may be prescribed daily without further formalities, provided the form of the prescription complies exactly with the prescribed regulation. A corresponding quantity of opium (2 Gm.) and the galenic preparations, particularly tincture of opium, is allowed. A similar amount is also allowed for general daily use in the physician's practice. The pharmacists do in fact observe these rules closely. Should the physician require larger quantities for "special cases," he must make an entry in the so-called morphine book.[8] The nature of the disease rendering such quantities necessary must be precisely stated and the period of time for which the remedy is prescribed. As in most cases the patient will be an addict, the numerous questions which the physician must answer in writing in the morphine book are specially adapted to drug addiction. The questionnaire reads as follows:

Age	1929	1930	1931
6 – 10	9	17	29
11 – 15	39	65	56
16 – 20	522	619	641
21 – 25	1038	1431	1446
26 – 30	965	1721	1696
31 – 35	529	936	692
36 – 40	382	658	571
41 – 45	183	325	359
46 – 50	188	310	428
51 – 55	55	158	133
56 – 60	58	67	125
61 – 65	24	27	56
66 – 70	24	49	39
71 – 75	2	5	28
76 – 80	5	9	25
81 – 85	1	2	21
86 – 90	1	2	19
91 – 95	1	–	9
96 – 100	–	2	6
Age unknown	726	152	375
Total....	4152	7155	6999

Fig. 8.—Ages of addicts and of persons involved in the trade, in Egypt.

1. What narcotic is concerned?
2. For how long has it been used?
3. Have "withdrawal cures" been carried out?
4. When?
5. In what institution or by what physician?
6. With what result?
7. What amount of the narcotic is said to be used daily?
8. What amount of morphine, opium, tincture of opium or extract of opium do you consider medically necessary at the time of making this statement?
9. Why is a "withdrawal cure" not being carried out at present?
10. When is it proposed to institute such a course of treatment?

6. Wolff, Paul: Zur Behandlung und Bekämpfung der Alkaloidsuchten, Deutsche med. Wchnschr., 1928, numbers 1-10; Die neue Verordnung über das Verschreiben von Opiaten und von Kokain, ibid. 57: 113 (Jan. 16) 1931; Morphinbuch und Kokainbuch, Leipzig, Georg Thieme, 1931.

7. Wolff, Paul; and others: Wann ist die Verschriebung von Opiaten ärztlich begründet? Deutsche med. Wchnschr. 57: 113 (Jan. 23), 178 (Jan. 30), 223 (Feb. 6), 266 (Feb. 13), 310 (Feb. 20) 1931.

8. Wolff (footnote 6, third reference).

Codeine and ethylmorphine hydrochloride are not practically dangerous from the point of view of habituation and, like papaverine, do not come under the German opium law.

On the other hand, the newer synthetic substitutes for morphine, which are also fundamentally habit forming, are included in that they may be prescribed only in certain amounts per patient daily. I would like to emphasize especially the fact that diacetylmorphine plays an extremely insignificant part in German medical practice and it is a matter for congratulation that it is little used by drug addicts. In this case the amount that may be legally prescribed, viz., 0.003 Gm. daily, is particularly low. If at any time it should be decided to demand the complete abolition of this preparation in the world, the slight advantages of which are by far outweighed by its disadvantages, I am firmly convinced that no opposition would be encountered from the German medical profession. More resistance would appear to be forthcoming, however, from English and French physicians, who employ small doses of diacetylmorphine to a much greater extent. This divergence of opinion was clearly perceptible at the last conference held by the League of Nations in

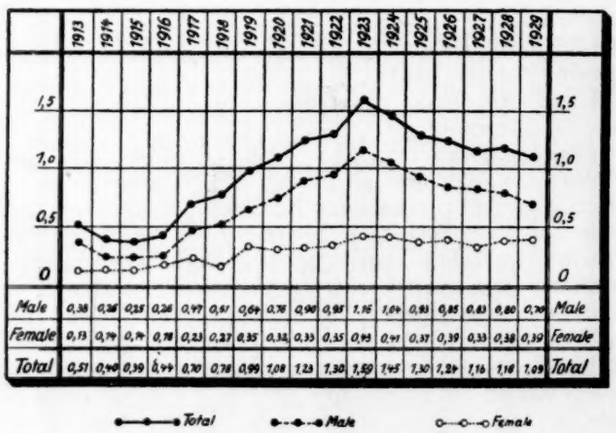

Fig. 9.—Percentage of addicts received in public mental hospitals of Prussia.

Geneva on the limitation of the manufacture of narcotic drugs, in June, 1931.[9] Here the American delegation expressed its entire agreement with our expert attitude toward the complete suppression of diacetylmorphine. An advance was, however, made in that it is proposed to institute a special control over the traffic in diacetylmorphine between the individual countries. It is to be hoped that these restrictions will serve to convince the medical profession in countries where diacetylmorphine is still used that the drug is in no way indispensable. The recommendations appended to the minutes of the convention read as follows:

The Conference:

Recognizing the highly dangerous character of diacetylmorphine as a drug of addiction and the possibility in most, if not all, cases of replacing it by other drugs of a less dangerous character:

Recommends that each government should examine in conjunction with the medical profession the possibility of abolishing or restricting its use, and should communicate the results of such examination to the secretary-general of the League of Nations.

This resolution undoubtedly constitutes a step forward in the task of suppressing this substance.

9. Wolff, Paul: Ueber die Bewertung von Diacetylmorphin (Heroin) bei der Genfer Konventions-Konferenz und über die Sucht in Aegypten, Deutsche med. Wchnschr. **57**: 1590 (Sept. 11), 1635 (Sept. 18) 1931.

It appears to me to be of importance to give a brief outline of the other most important substitutes, without going into the details of chemical composition. It is sufficient to state that in their chemical constitution they are all closely related to morphine and are capable of giving rise to addiction. Dihydro-oxycodeinon, the oldest of the substitutes, has a marked narcotic and analgesic action. It has all the properties of morphine and is often better tolerated by sensitive patients. At times, however, it exercises a potent euphoric action which is frequently undesirable. In this connection, however, it should be emphasized that in many hopeless cases of carcinoma and tuberculosis it is essential to administer morphine or some other opiate as a euphoric. Addiction to dihydrocodeinon is not to my knowledge very common, on account of the fact that it is generally given orally rather than by injection. It frequently produces a very marked and desirable codeine effect. Dihydromorphinon has also proved valuable. It is often better tolerated and has the particular advantage that it depresses peristalsis less than morphine (hence its use after abdominal operations). Further, it has been shown both experimentally and clinically that it leads more slowly to habituation and addiction and its devotees are therefore more easily cured.

A further great advance would be made if injections of morphine, and the like, were replaced as far as possible by the use of suppositories. Not only do these produce the same qualitative and quantitative effect but also the patient is not immediately aware that he has received morphine. In many cases in which medical treatment is the origin of the addiction, numerous mental associations would be avoided in the absence of the symbol of the syringe. For example, after abdominal operations the routine use of a certain number of morphine injections is objectionable. A suppository will produce precisely the same result and, in addition, the syringe will thus be taken out of the hands of the nurse a most desirable achievement.

The strict control over the prescription of opiates, which has been described, has had its visible result in the great decline of the use of such drugs within the country. The consumption of morphine has decreased from 1,350 Kg. in 1925 and 1,600 Kg. in 1926 to 1,160 Kg. in 1930. Although the exact figures for 1931 are not yet available, a further fall of about 25 per cent is expected. Opium has similarly fallen. In 1931 some one third of the previous figure of 2,600 Kg. was used, a diminution of two thirds. The employment of diacetylmorphine in Germany has for some time been very limited. From 50 Kg. in 1925 it sank to 38 Kg. in 1930, and the figure for 1931 will be about 66 per cent less, a very small amount indeed, which need hardly be considered for practical purposes. All things considered, the sacrifices to which the medical profession has submitted have produced a marked decline in the use of habit-forming drugs.

In comparison with our experience in the war and postwar periods, cocaine addiction no longer presents a grave scientific problem. Here again I feel justified in considering the details of special pathology and therapy as well known.[10] With our present accurate

10. Joel and Fränkel: Der Kokainismus, Berlin, J. Springer, 1924. Maier, H. W.: Der Kokainismus, Leipzig, Georg Thieme, 1926. The detailed literature may be found in Meggendorfer: Intoxikationspsychosen, Handbuch der Geisteskrankheiten, Berlin, J. Springer, **7**, 1928. Terry and Pellens: The Opium Problem, New York, 1928, Bureau of Social Hygiene. Wolff, Paul: Praktische Therapie der Alkaloidsuchten in von den Velden und Wolff: Handbuch der praktischen Therapie als Ergebnis experimenteller Forschung, Leipzig, J. A. Barth **2**, 1927; Morphinismus und verwandte Alkaloidsuchten, Neue deutsche Klinik, **7**, 1931.

knowledge of the features of the disease, it is impossible to understand that in the eighties cocaine was seriously recommended and employed for the treatment of morphine addiction and that a military physician was prompted to recommend cocaine as a method of improving the marching capabilities of soldiers. Today the uncritical praise that was accorded to cocaine in the medical literature of almost every country must be discounted. The reaction of critical and far-seeing medical men rapidly set in and the story of morphine-cocaine addiction is now only a painful memory.

I should like to refer briefly to one point in the pathology. The question of the exact relation between pure cocaine addiction and homosexuality [11] does not appear to be entirely clear. That such a relationship exists is clear from the observations of a number of experienced research workers. I have seen such cases in which, while exercising all possible critical judgment and scientific caution, it was possible to say that at any rate the homosexual activity first appeared during the period of cocaine abuse. Today we know that the female sex hormone is also present in the male organism and this fact tends to confirm what appears to me to be the most likely explanation of this phenomenon. It may well be that sexual impotence, which occurs in men as a result of cocaine addiction, brings to the surface a hitherto latent component of inversion, the degree of which is dependent on the extent to which the individual is bisexual. In this connection it is significant that after a "withdrawal cure" or, better said, after "disintoxication," a certain number of these persons recover complete heterosexuality, while others remain either homosexual or bisexual. I doubt, however, whether this is a true pharmacodynamic effect, and it must not be forgotten that among cocaine addicts it is more common to find persons of somewhat unstable mind and character than among the many types of opium addicts. Among the devotees of cocaine it is common to find unrestrained and psychically labile types of many varieties which are summed up under the somewhat vague name of psychopaths. On this point much remains to be cleared up, but from the medical point of view it would perhaps be more satisfactory if the problem remained unsolved owing to the dearth of clinical material resulting from the rapid decline of cocaine addiction. I myself am optimistic and I hope to be able to justify this attitude by showing the rapid and energetic measures which we are taking to combat cocaine addiction. At any rate, in Berlin it is now a matter of no small difficulty to find a true case of pure cocaine addiction to demonstrate to students.

THE SPREAD OF COCAINE ADDICTION

A few words must first be said with reference to the spread of the abuse of cocaine. The wave of "snow" or "white powder" (many varieties of pet names for the drug were employed by addicts in various countries) that flowed over Europe during and after the war is now on the ebb. Before the war there was little abuse of cocaine, at least in central and western Europe. There were individuals who employed cocaine injections and also combined morphine and cocaine addicts. The habit, however, of taking the drug like snuff into the nose, which is the outward sign of the spread of the addiction (and which corresponds to the popularization of morphine by the introduction of the pravaz syringe), was not noticeable until the war, when it first broke out in France, in the Russian army and later in central Europe.

What is the method of spread of the abuse of cocaine? The answer to this question appears to me to lie in the known facts with regard to its spread in a country which remained free from war, British India.[11] The habit began by chance in a small provincial town, where a land owner employed cocaine against toothache and subsequently became an addict. The habit was then spread by proselytism, as is common with cocaine among young people. The habit then rapidly spread along the two main railway lines toward northern India, through the agency of commercial travelers and others. Towns on side-lines and the larger part of the country districts have remained free from cocaine addiction, as shown on the map (fig. 10). Many rapidly became the victims of this nefarious trade, which as usual brought in handsome profits. Cocaine was in particular demand among manual workers and other sections of the lower classes on account of its reputation as a sexual stimulant (this, as already stated, is the case only in the early stages of addiction). From an etiologic point of view it is interesting to note that only in a negligible number of cases was medical treatment with the drug the origin of the addiction, a state of affairs which contrasts with the position in Europe and, perhaps, America. Cocaine previously reached India chiefly from Europe and also from America. Since its prohibition it has been mainly obtained from Japan, mostly through the agency of Chinese smugglers. Japan has been engaged in the manufacture of habit-forming drugs for only a comparatively short time, some fifteen years, and there now exists an extensive smuggling organization. Here, as in other countries, such as Egypt and the Far East, a water-proof packet containing narcotics is frequently made up and weighted with a sack of salt. Both of these are thrown into the water and later, when the salt has dissolved, the packet containing the drug rises to the surface and is fished out. The number of cocaine addicts in India is estimated at from a fourth to half a million, most of whom are in the prime of life between 20 and 40 years of age. The extraordinarily wide extension of the addiction does not here depend on the possibility of inhaling the drug as is the case in Europe and America. In India the drug is associated with the chewing of betel nut. The snuff-

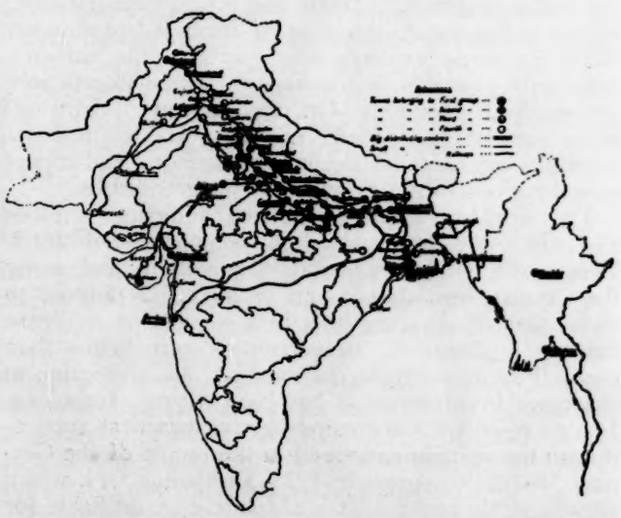

Fig. 10.—Provinces and principal cities in India, in which there is addiction to cocaine.

11. Chopra, R. N., and Chopra, G. S.: Cocaine Habit in India, Indian J. M. Research 18: 1013 (Jan.) 1931.

ing of the drug is, curiously enough, unknown in India up to the present.

This short account of a state of affairs which is not generally known serves to show that cocaine addiction has also spread with alarming rapidity among a population which differs markedly in many ways from that of Europe and North America. Mohammedans and Hindus are both involved in the habit, the former, however, to a considerably greater extent. Cocaine addiction is thus no less a world problem than morphinism and other opiate addictions.

In all serious consideration, however, it is possible for several reasons to regard the combating of cocaine addiction with greater optimism than is the case with addiction to opiates. Undoubtedly the great increase in the amounts available has contributed to the spread of the addiction, although South America has been ousted from the pharmaceutic market for pharmaceutical cocaine by the cultivation in the Dutch Indies of a coca leaf which has a higher content of the alkaloid. Countries that previously imported their supplies now manufacture the required amounts themselves, as for instance Japan. There are no medical grounds whatever for the justification of increased production and there is no evidence whatever that the amounts previously available in the market were not sufficient for medical purposes. On the contrary! Further, from our point of view, economic and commercial questions can carry no weight against moral and ethical considerations in the province of drug addiction.

The world problem of cocaine addiction resolves itself into the problem of its complete eradication. This is well within the bounds of possibility and, using the German legislation as an example,[12] I purpose to show that in pursuing this aim we are in no sense hunting a phantom. Prevention is here better than cure. For over a year the handing out of cocaine in substance by pharmacists has been entirely forbidden. In this respect we are merely giving practical application to the opinion expressed in the report of the German Medical Congress in 1928, an opinion with which all will surely agree. "It is absolutely unjustifiable for a physician to supply cocaine to a cocaine addict. There is no question of malpractice or of endangering the addict's life associated with the complete refusal to prescribe the drug under any circumstances whatever." Sudden withdrawal is, on the contrary, the treatment of choice.

The largest amount with which any physician may be supplied for daily use in his practice is 1 Gm., and this may be issued in at most a 10 per cent solution. When prescribing it he must make out a very accurate prescription and make a corresponding entry in the so-called cocaine book.[9] He is allowed to use this solution for operations (including diagnosis) only on the eye, larynx, nose and ear and for surgical attacks on the pharynx and maxilla. Further, it may be applied only to the mucous membrane. Any form of injection is forbidden, as also its use in internal medicine (as for instance in the treatment of painful gastric ulcer or in urology) except to a small extent; for example, the use of a 1 per cent solution with the addition of at least 0.1 per cent of atropine sulphate is permissible for nebulization in bronchial asthma. Many experts in the various branches of medicine were consulted and they were all of the same opinion. In addition, the physician may provide the patient with small amounts not exceeding 0.1 Gm. daily, for home use. Full details must, however, be entered and only a 1 or 2 per cent solution should be used. On this point the full agreement of the profession was obtained. Before the new ordinance, a large proportion of smuggled goods were obtained by prescriptions without the knowledge of the physician, through miscalculations. Apart, however, from such cases, which are exceptions, we were convinced that the consumption of cocaine was fundamentally susceptible of limitation. In many indications the non-habit-forming substitutes produce the same therapeutic effect and avoid the danger not only of addiction but also of cocaine poisoning and idiosyncrasy.

With a year's experience behind us it should be possible to introduce some alleviations into the regulations, as for example the permission to use a 20 per cent solution and the hitherto forbidden cocaine ointment. This short period of time, however, has sufficed to show that the substitute preparations, particularly ethyl aminobenzoate, procaine hydrochloride, butamin and the newer Larocain and Pantocain (local anesthetics of the paraminobenzoyl series), can in many cases completely replace cocaine, even in the upper air passages, though none of them are entirely adequate for the eye.

As a result of the measures, the consumption of cocaine in Germany, which during the years 1925-1930 was about 400 to 450 Kg. a year, has fallen to less than half this amount in 1931. It is clearly fair to my German colleagues to state that, even before the introduction of these regulations, they had been so impressed by their experience of cocaine addiction in the post-war period that they themselves had restricted as far as possible the use of cocaine. The supply of good substitutes and the increasing attention which these have received has greatly helped in this effort to avoid cocaine and to prescribe it only when it is absolutely necessary. I know of practicing otorhinolaryngologists who have entirely desisted from the use of cocaine even in major operations and who never use it under any circumstances. Furthermore, they express their satisfaction at being thus relieved of the danger of cocaine poisoning.

The therapeutic limitations which these regulations as to the prescription of opiates and cocaine have imposed on the German medical profession are certainly very strict. The physicians, however, have readily submitted to these inroads into their freedom in the choice of remedies, in order to play their part in the struggle against drug addiction, and to contribute to a really effective campaign against this evil in the interests of the nation's health.

One can only ascribe to these measures the credit for the fact that in Berlin, which was formerly, for German standards, thickly sprinkled with illegal drug dealers, there has not been a single case of falsification of a cocaine prescription for over a year, no pharmacist is permitted to hand over cocaine substance, and the weak solutions that are employed for patients are of no value to the secret dealers. Further, there has undoubtedly been a decrease in the number of these illegal dealers and I know from my own experience that it is now difficult to obtain cocaine through these channels in the night resorts of Berlin. Illegal morphine trading is also infrequent, as was always the case. Here the addicts obtain their supplies through credulous practitioners and the falsification of prescriptions. The latter have increased of late and are skilfully carried out. Two-tenths gram of morphine is

12. Wolff (footnote 6, second reference).

always a useful amount even for nonmedical purposes, and in this case the undissolved substance is of no special importance. The postwar days, when it was easier in Berlin to obtain 1 Kg. of morphine illegally than 1 cg., are definitely over. From the great and rapid strides recently made, I think it may be said on mature reflection and without undue optimism that the time is not far distant when a substitute will be found for cocaine which will satisfy the most exacting demands of specialists in any branch of medicine. The time will then have come to declare cocaine to be obsolete and to destroy the plantations. Commerce

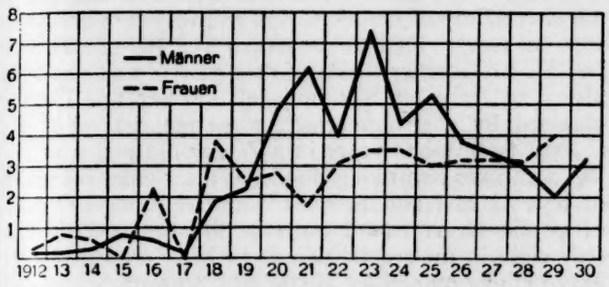

Fig. 11.—Morphine addiction at the Charité (Berlin): solid line, men; broken line, women.

should then no longer triumph over science, and cocaine addiction will no longer form a world problem.

Is it possible to entertain the same hope with regard to the opiates? Here I am somewhat skeptical. It is true that in this field also progress has been made in many directions, and I would like to give an example from Germany. The sharp rise in the consumption of habit-forming drugs and, for physicians, still more important, in the number of addicts which occurred after the war is well known. It is not surprising, however, that this abnormally inflated number of morphinists and cocaine addicts should again shrink with the restoration of normal conditions, as is shown in the accompanying curves. From these figures, taken from the Prussian medical statistics, it will be seen that there was a gradual increase up to 1923, when the climax of German inflation was reached (fig. 9). The same is shown in the curve obtained from the statistics of the Berlin University Psychiatric Clinic of the Charité for morphinism and cocaine addiction (figs. 11 and 12).[13] The much larger proportion of males affected is noticeable. There is no doubt that the increasing anxiety for the difficulties brought by every new day, the inflation, the uncertainty of the very necessities of life coming as a climax to the strain of the war and the tragedy of its ending, led many to seek a temporary relief in narcotics. That this was only a passing phase and that, in spite of the apparent abandon, the core of the nation remained sound, is shown by the rapid fall of the curves after the return of more stable conditions. Nevertheless the percentage of addicts still remains higher than it was in the prewar period. This is perhaps not surprising when it is remembered that there will always be morphine addicts so long as the physician is obliged to use this remedy which heaven has given us. The evidence that I have presented as to the rapid and at times astonishing decline in the consumption of opiates and cocaine, however, justifies the hope that the stringent regulations introduced into Germany will still further reduce the number of addicts simply because the patients and physicians are constantly confronted by increasingly difficult obstacles. Moreover, the economic position no doubt plays a part since it compels individuals to attempt to free themselves from the addiction on account of the great expenditure it entails and also because they know that it is harmful. If this is not so, the individual's family and more especially his physician must intervene. In the treatment of addicts it is essential not only that the physician be experienced and learned but also that he possess a strong personality. Important and interesting as it is, I cannot within the limits of this survey enter on a description of the details of treatment of addicts. I will only say that in Germany the bulk of opinion is in favor of the sudden withdrawal method [14] of Bonhoeffer and others as the remedy of choice, apart from a few contraindications, as I could bring evidence to show.[7] The most severe symptoms of abstinence may be tided over by the inducing of several days' sleep, and the newest method of treatment by means of insulin with or without grape sugar,[15] appears to be a scientifically justified and promising method which, however, requires further confirmation. Much work is still to be done, and the commission appointed by the health committee of the League of Nations "to study the treatment of drug addicts" should be able to collect valuable material from the scientific literature of all countries. The preliminary work is already making rapid strides.

13. Bonhoeffer: Psychopathologisches aus der Nachkriegszeit, Ztschr. f. ärztl. Fortbildg., 1931, number 5.

CONCLUSION

Thus I have once again returned to purely medical matters, which, in spite of necessary statistical material and important political considerations, is of most interest to us. The amount of opium produced at present is far in excess of what is required medically. This is known by every one. The practical difficulty lies in economic considerations, in the impossibility of obtaining accurate figures of the production in inner Asia, and finally in the question as to what the poppy cultivators can grow as a means of livelihood.

These difficulties have yet remained unsolved in spite of all the efforts of the League of Nations. The

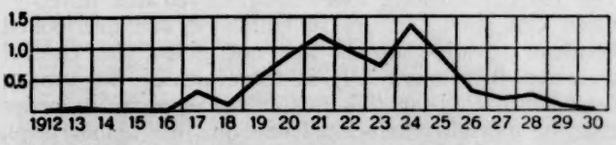

Fig. 12.—Cocaine addiction among men and women at the Charité (Berlin).

position as it exists in British India, for example, permits of a certain amount of hope. Morphine is needed and will continue to be needed so long as there is illness. A time will perhaps come, however, when in the search for a therapeutically active substance the ideal morphine will be discovered, the Eumorphin, which will possess all the properties of morphine including the euphoric effect but which will no longer lead to habituation and addiction.

The results thus far attained in this field are encouraging, for there is reason to hope that the research work of the future will be crowned with success similar to that which has been witnessed with cocaine. That we are on the way to such a discovery I have shown

14. Meggendorfer, Terry and Pellens, Wolff (footnote 11).
15. Wolff, Paul: Behandlung mit Insulin und mit Traubenzucker bei der Entziehungskur von Morphinisten, zusammengefasst in Fortschritte der Therapie, 1932, number 7.

by a few examples. The widespread interest in this problem is evidenced by the activities and research studies being undertaken in many countries. The coordinate program of the several agencies in the United States concerned with these matters must eventually contribute something to the sum total of knowledge on this subject. It may be that the chemical researches being carried out under the auspices of the National Research Council in the Cobb Laboratories of the University of Virginia, which have made so profound an impression on me, side by side with pharmacologic experiments and clinical trials, will lead to this achievement. Furthermore, side by side with this undertaking, which, like all research work, must be regarded for the moment as theoretical, comes another activity promising tangible and more immediate results: I refer to the program of the United States government for the control, segregation and treatment of those addicted to the use of habit-forming narcotic drugs.

We must continue to fight against addiction and the bodily and mental decay of the individual and of large sections of the population in many lands, and must increase our efforts whenever possible. Only when we have found this ideal morphine will the physician be given an all-powerful weapon. Then only will the end of the road be in sight and, by the cooperation of physicians, scientists and governments all over the world, drug addiction will cease to be a world wide problem.

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CHRONIC PEPTIC ULCER IN CHILDREN

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A thorough study of available reports emphasizes the infrequency of chronic peptic ulcer in children. Up to twenty years ago it was considered a rarity, but within the last few years it has been encountered more often. Too often, however, the condition remains unrecognized clinically. Ulcers in childhood are overlooked because digestive upsets are not given the careful attention they merit. It is therefore of the utmost importance to bear this possibility in mind in order that the mortality associated with profuse hemorrhage, pyloric obstruction and perforation with peritonitis may be avoided. This study does not include cases of melena neonatorum, in some of which acute ulcers are found.

Sturtevant and Shapiro [1] found only five cases of gastric ulcer in children in 7,219 necropsies. From 1906 to 1925, in 8,260 (6,664 duodenal and 1,596 gastric) peptic ulcers at the Mayo Clinic, Proctor [2] discovered only two in children, one duodenal and one gastric ulcer. Proctor analyzed the literature and by his standards accepted only nineteen cases in children: sixteen in girls and three in boys; three duodenal and sixteen gastric. Six perforated and three bled profusely. Three improved with medical management and seven came to operation. Proctor reports three cases, in two of which gastro-enterostomy brought relief. Dickey [3] states that the diagnosis is usually made at operation or necropsy, and reports three cases diagnosed clinically. Loeber [4] describes the case of a girl who vomited material containing occult blood. Roentgen examination revealed a penetrating gastric niche high on the lesser curvature. The child improved on a modified Sippy regimen. Palmer [5] studied a series of patients in whom the correct diagnosis was made or suspected in only ten cases. He stresses the need for increased diagnostic acumen. He probably led the way in surgery, having performed a gastro-enterostomy in a six months infant with a duodenal ulcer. Holt and Howland [6] advocate symptomatic treatment because of the uncertainty of diagnosis and consider surgical intervention rarely justifiable. Allen A. Jones,[7] Thiele [8] and H. M. Richter [9] concur that gastric and duodenal ulcers are rare but not unusual. Miller and Gage [10] obtained by gastro-enterostomy permanent relief for at least twenty-one years in a 7 year old girl who had had a chronic cicatrizing duodenal ulcer since 6 months of age. Hurst and Stewart [11] at Leeds, in 200 cases of peptic ulcer, found none in the first decade and only eight in the second decade of life. Proctor of the Mayo clinic, quoted by Hurst and Stewart, states that 16 of their last 1,000 gastric ulcers and 26 of their last 1,000 duodenal ulcers gave histories of gastro-intestinal upsets dating back to childhood, in some cases to 4 or 5 years of age. Barford of New Lodge clinic, also quoted by Hurst and Stewart, found no cases in the first decade of life, but traces the history in many cases of peptic ulcer to that period. Paus's [12] statistics revealed only 2 cases in children, among a total of 168 cases, in whom operation was performed. De Toni [13] considers ulcers in children to be acute and secondary in type, running a rapid course and necessitating emergency surgery. He presents one case in a child of 10. Thiele [14] gives his experience with chronic peptic ulcer in a child of 2. Moynihan [15] agrees that the symptoms of chronic peptic ulcer often date back to the age of 10 or earlier. One of us (L. B.) in a study of 450 cases of peptic ulcer found 12 patients under the age of 20. In these the symptoms had begun three to five years before the first visit to a physician. One gave a history of distress beginning at 7. Many patients presented themselves for examination in the early thirties and late twenties, with a history of symptoms of fifteen years' duration, indicating that duodenal ulcer would not appear to be rare in the second decade of life. All these cases were confirmed by roentgen examination and the finding of a duodenal defect.

The following five cases came under our observation:

PROTOCOLS

CASE 1.—B. W., a girl, aged 9½ years, who was previously in perfect health, had stomach trouble for three years. The

From the Departments of Gastro-Enterology and Pediatrics of the Mandel Clinic, Michael Reese Hospital.

1. Sturtevant, Mills; and Shapiro, L. L.: Gastric and Duodenal Ulcer, Arch. Int. Med. **38**: 41 (July) 1926.
2. Proctor, O. S.: Chronic Peptic Ulcer in Children, Surg., Gynec. & Obst. **41**: 63 (July) 1925.
3. Dickey, L. B.: Duodenal Ulcers in Children, Am. J. Dis. Child. **32**: 872 (Dec.) 1926.
4. Loeber, Maud: Gastric Ulcer in Girl Three Years Old, Arch. Pediat. **46**: 578 (Sept.) 1929.
5. Palmer, D. W.: Ann. Surg. **73**: 545 (May) 1921.
6. Holt and Howland: Diseases of Infancy and Childhood, New York, D. Appleton & Co., 1929, p. 269.
7. Jones, A. A., in Tice: System of Medicine **8**, 475.
8. Thiele, P.: Gastric and Duodenal Ulcers in Children, Deutsche Ztschr. f. Chir., July, 1919, p. 275.
9. Richter, H. M., in Abt's Pediatrics **3**, 535.
10. Miller, Reginald; and Gage, H. C.: Gastromegaly and Chronic Duodenal Ileus in Children, Arch. Dis. Childhood **5**: 83 (April) 1930.
11. Hurst, A. F., and Stewart, M. J.: Gastric and Duodenal Ulcer, London, Oxford University Press, 1929, p. 35.
12. Paus, Nikolai: Ulcer of the Stomach in Childhood, Acta chir. Scandinav. **61**: 40 (Oct.) 1926.
13. De Toni, Giovanni: Gastroduodenal Ulcer in the Child, Arch. ital. di chir. **26**: 703 (Aug.) 1930.
14. Thiele, P.: Ueber Geschwürsbildung des gastroduodenal Tractus in Kindesalter, Ergebn. d. inn. Med. u. Kinderh. **16**: 302, 1918.
15. Moynihan, B.: Surgical Treatment of Gastric Ulcer, Brit. M. J. **2**: 99 (July 24) 1920.

symptoms came on gradually with no apparent predisposing factors but were accompanied by an urticarial rash. At first a definite seasonal variation occurred, the child feeling worse in spring and fall, but of late the distress had been continuous. The pain, cramping or nauseating in nature, usually appeared several hours after eating but sometimes immediately before and at other times immediately after eating. Belching, sour taste and bloating were occasionally noted. External heat always brought relief, food taking did occasionally and bowel movement never. Baking soda was never tried. No relation could be traced to the type of diet. Remissions appeared spontaneously. Since the urticarial rash appeared with the "stomach trouble," skin tests were performed. The allergy tests with pork, raisins, string beans, rice, potatoes and plums were positive. At present the child eats most of the aforementioned foods with impunity. During the past three years various medicines, quartz light and diet have failed to produce relief. The child has never had acute appendicitis, jaundice, tarry or clay colored stools, diarrhea or bloody vomitus.

Examination revealed tenderness in the epigastrium. An Ewald test meal showed free acidity 28 and total acidity 48. Stool examination revealed no occult blood. Roentgen examination revealed a defect on the posterior wall of the duodenum (on four examinations) and spasticity in the colon in twenty-four hour examinations with a barium enema. Both primary and dye gallbladder plates were normal. This patient was put on a mashed, puréed diet without meat and given a mixture of tincture of belladonna and camphorated tincture of opium in April, 1931. No alkalis were advised. Relief appeared at once.

CASE 2.—M. Z., a girl, aged 11 years, had been well up to six months before the time of examination, when she began to suffer with epigastric cramps and the passage of bright red blood with stools. The pains occurred at least once daily and bore no relation to food taking, type of diet or bowel movement. The pain appeared at any time of the day but not very often at night.

The patient was well developed and well nourished. Tenderness was noted in the epigastrium, right lower quadrant and left lower quadrant. Proctoscopic and rectal examinations gave normal results. An Ewald test meal aspiration contained 15 free acidity and 57 total acidity and no occult blood. Stools contained 4 plus occult blood and no ova or parasites. Roentgen examination disclosed a defect on the posterior wall of the duodenum on several examinations, a tender segmented appendix, and spasticity and tenderness of the colon. Meckel's diverticulum could not be demonstrated, and the gallbladder was normal by both primary and dye plates. This patient improved under a modified Sippy management with bed rest for three weeks.

CASE 3.—N. S., a boy, aged 13 years, had been well up to five months before examination, when sharp epigastric pains began to appear quite regularly, four or five times daily, half an hour after meals and occasionally before breakfast. The pain lasted about fifteen minutes. No nausea occurred. There was no relationship to bowel movement. A low residue diet had not relieved the distress. The patient's uncle had had an ulcer.

The patient was thin and well developed; he weighed 93 pounds (42 Kg.). Marked deep tenderness was noted at the umbilicus and slight tenderness along the left lower quadrant. The Ewald test meal examination showed free acidity of 32 and total acidity of 52. Stool examination revealed positive occult blood. Roentgen examination disclosed a defective duodenal bulb on two examinations. Examination of the appendix, colon and gallbladder (primary and dye films) gave negative results. On a modified Sippy management the patient's distress disappeared except for a transitory pain two or three times weekly.

CASE 4.—F. A., a girl, aged 5 years and 1 month, who was seen by one of us (L. B.) in consultation with Dr. W. J. Corcoran, had had no gastro-intestinal disorder up to one month before. Constipation had been noted for four months and abdominal pain immediately after eating for one month. Elimination of raw fruits and vegetables for one month had not improved the condition. There was no vomiting or jaundice.

Physical examination demonstrated nothing abnormal. The stools contained no occult blood. Roentgen examination revealed a duodenal defect. The patient and films were seen by one of us (L. B.) at the Mercy Hospital in Chicago. The child was put to bed and treated by a modified Sippy regimen. In one week the pain had disappeared, and although the patient is on a full diet it has not reappeared during the past two years except for one slight attack of one month's duration.

CASE 5.—G. K., a girl, aged 8½ years, was referred to one of us (L. B.) by Dr. H. M. Richter. Until the age of 3 months she vomited almost everything she ate. At the age of 10 weeks she vomited some dark blood. The vomiting then lessened gradually until she reached the age of 6, after which she vomited rarely. At about this time she again vomited some dark blood. One year before she was seen by Dr. Richter she began to complain of occasional substernal heaviness coming on two hours after eating, which was relieved by taking food or soda. One month later the heaviness became a pain and occurred daily and after every meal. Taking food relieved the pain. One month before we saw her she vomited some dark blood and passed tarry stools. The patient was a well developed stout child in whom nothing abnormal was found aside from a marked pallor. Two roentgen examinations by different observers disclosed no duodenal defect. Nov. 19, 1931, the hemoglobin was 50 per cent (Dare) and red blood corpuscles numbered 3,120,000. This remained the same until the end of January, 1932, when the mother reported that the child had passed several tarry stools. The hemoglobin at this time was 35 per cent and the red blood corpuscles numbered 2,810,000. As the child had been in bed continuously for several weeks without improvement and the loss of blood continued, she was referred back to Dr. Richter. A transfusion of 300 cc. of blood was given, February 4. The next day an operation was performed by Dr. Richter and disclosed two small superficial ulcers located on the posterior wall of the duodenum about 1 cm. from the pylorus. It was necessary to incise the duodenum to find them because there were no external evidences of the ulcers on the peritoneal surface. The ulcers were cauterized and a pyloroplasty was done. The first bowel movement after the operation showed considerable blood, the following two showed a very small amount, and the subsequent one showed none.

COMMENT

Chronic peptic ulcer in children does not produce the classic symptomatology noted in adults. Continued abdominal distress or cramps several times a day may constitute the sole subjective evidence. The hunger pain of ulcer is rarely noted. The relation to alkalis has not been worked out in children and is not important, as stated by Bloch and Serby.[16]

On examination, just as in adults, a tender point may be found in the epigastrium. The Ewald and stool examinations may not assist in making the diagnosis. Roentgen examination reveals a definite duodenal defect. The defect should be verified by subsequent examinations to rule out spasm of extrinsic origin. Four patients showed duodenal defects, although others on investigation have found more gastric than duodenal lesions. This condition must not be confused with one occurring in children in whom pain and vomiting come on a short time after meals and in whom roentgen examination shows a dilated duodenum and a slowing of the passage of duodenal contents at the duodenojejunal junction as a result of a narrowing produced by pressure of the root of the mesentery on the duodenum. The therapeutic results in these patients have proved satisfactory in four and poor in one on medical management, a modified Sippy regimen. This consisted of rest in bed for three weeks, milk and cream, 2 ounces every two hours. Three patients

16. Bloch, Leon; and Serby, A. M.: Use of Alkalis in the Treatment of Peptic Ulcer, J. A. M. A. 92: 134 (Jan. 12) 1929.

received calcium carbonate, 10 grains (0.65 Gm.) every hour and magnesium oxide only when constipation ensued. Tincture of belladonna, 5 minims (0.3 cc.) twice a day was administered. The diet was augmented by purées, soft-boiled eggs, cereal and custard. Later, a six meal schedule was instituted and alkalis were decreased to three times daily.

The importance of allergy as a cause of gastrointestinal pain must not be overlooked, as stated by Rowe, Duke and others. We wish to call attention again to case 1, in which evidence of allergy accompanied the onset of symptoms. It is to be noted that the patient is now eating some of the articles to extracts of which positive tests were obtained, without being affected. It is possible that an allergic response was instrumental in producing a duodenal ulcer and that other factors such as mechanical or chemical have produced chronicity in this case.

CORONARY ARTERY DISEASE IN THE WORKING CLASSES

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There is much evidence suggesting that angina pectoris associated with atherosclerosis of the coronary arteries, as well as thrombosis of the coronary arteries, is becoming more frequent. Many famous clinicians of the nineteenth century remarked on the rarity of angina pectoris. In Germany, Bamberger [1] wrote that it was one of the rarest symptoms of heart disease. He had seen only six cases when he published his book in 1857. In the year 1845, of 5,171 deaths in Hamburg, only 3 were attributed to angina pectoris.[2] In Great Britain this syndrome seems to have been more common, for such men as Latham and Stokes write as though they had seen many cases; yet as recently as 1896 the distinguished Edinburgh consultant Balfour [3] wrote that he had seen ninety-eight cases of angina pectoris in ten years. In the United States, Flint [4] found angina pectoris a rare disease. He encountered only 15 cases in 1,838 consecutive cases of heart disease. Osler,[5] in 1897, had seen only forty cases of true angina pectoris. Today every internist sees these patients in far greater numbers. We have seen 225 new cases of angina pectoris or coronary thrombosis in less than two years. This discrepancy can be explained only in part by greater precision in diagnosis. Undoubtedly the increasing custom of special cardiologic examinations, and especially the recognition of the value of electrocardiographic examinations in the diagnosis of coronary disease, brings many more of these patients to the office of the specialist than in former generations.

Many authors are of the opinion that the great stress and hurry of modern life has brought about a greater frequency of disease of the coronary arteries. In support of this assumption they point out that it is encountered especially among the well-to-do and among men of big affairs and great responsibilities; it is assumed that the strain of modern business and professional life in some subtle way leads to early degenerative changes in the coronary arteries. Phillips [6] speaks of angina pectoris "occurring in people who work with their brains at high pressure"; it has often been referred to as the doctor's disease. Osler, Huchard,[7] Allbutt, Gallavardin,[8] Danielopolu and Brooks [9] all support this view. It is true that Allbutt expresses some doubt as to the validity of the published statistics and that Huchard and Gallavardin add that they have seen many cases in workmen. Gibson [10] seems to be alone in emphasizing that in districts where hard mechanical occupation is the rule, angina pectoris is far from uncommon among the working people.

During the past two years one of us, as cardiovascular consultant to a large organization composed almost exclusively of industrial workers, has had the opportunity of studying more than 600 patients of this social group who were referred by their family physicians because of symptoms that suggested heart disease. The clinical material included the male wage earners, their wives, who for the most part took care of their homes, as well as their children. The patients were all Jews, and the largest number of the wage earners were employed in the garment industry in New York City. The present study comprises 615 consecutive cases of this group. Although in this paper we wish to direct attention particularly to those patients suffering from disease of the coronary arteries, a few general statistics will serve as a background. These are presented in table 1.

TABLE 1.—*Etiologic Classification of Patients with Cardiac Disease*

Condition	Males		Females		Total	
	Number	Per Cent	Number	Per Cent	Number	Per Cent
Coronary artery disease*	144	45.5	27	13.7	171	33.4
Rheumatic valvular disease	52	16.4	53	27.0	105	20.5
Essential hypertension	36	11.4	56	28.5	92	17.9
Neurocirculatory asthenia	34	10.8	32	16.3	66	12.8
Functional systolic murmurs	28	8.8	16	8.1	44	8.6
Syphilis of the aorta	2	0.6	0	....	2	0.4
Congenital heart disease	2	0.6	1	0.5	3	0.6
Thyrogenic heart disease	2	0.6	2	1.0	4	0.8
Miscellaneous cardiac conditions	16	5.0	9	4.5	25	4.9
Totals	316		196		512	

* Patients with coronary artery disease and hypertension are listed only under the heading coronary artery disease. There were forty-nine males and twenty-two females, or a total of seventy-one patients with both conditions.

Of the 615 persons, 233, or 38 per cent, were women; 97 were children under the age of 16. The age and sex distribution is given in detail in table 2. One hundred and three, or 17 per cent of the whole series, were found to have no cardiovascular disease, no functional murmurs and no neurocirculatory asthenia. This leaves 512 cases in which a cardiovascular diagnosis was made: 171, or 27.8 per cent, of the whole series; and if the 103 cases without cardiovascular disease are subtracted, fully one third of the remainder had evidence of disease of the coronary arteries. This is an exceptionally high incidence.

1. von Bamberger, Heinrich: Lehrbuch der Krankheiten des Herzens, Vienna, 1857, p. 34.
2. von Dusch, Theodor: Lehrbuch der Herzkrankheiten, 1868, p. 334.
3. Balfour, G. W.: The Senile Heart, ed. 2, London, A. & C. Black, 1896.
4. Flint, Austin: Diseases of the Heart, ed. 2, Philadelphia, 1870, p. 297.
5. Osler, William: Lectures on Angina Pectoris and Allied States New York, 1897.
6. Phillips, John: Angina Pectoris, South. M. J. **19**: 95 (Feb.) 1926.
7. Huchard, Henri: Traité clinique des maladies du coeur, Paris **2**: 524, 1899.
8. Gallavardin, L.: Les angines des poitrines, Paris, Masson & Cie, 1925.
9. Brooks, Harlow: Angina Pectoris, New York, Harper & Brothers, 1929.
10. Gibson, G. A.: Diseases of the Heart and Aorta, Edinburgh, Y. J. Pentland, 1898, p. 763.

We employed strict criteria for the diagnosis of coronary artery disease. The diagnosis of angina pectoris was made only if the history revealed a typical Heberden's syndrome, i. e., substernal pressure or pain provoked by effort, compelling the patient to halt his activities. In many instances there was typical radiation to the left arm. Coronary sclerosis with myocardial degeneration was diagnosed when, in addition to the classic history, there were electrocardiographic changes, which are generally accepted as indicative of myocardial injury, such as deformation of the RT segment, or the T wave, or marked alteration of the QRS complex. Coronary thrombosis was diagnosed when the history revealed a severe attack of substernal pain, lasting two or more hours, accompanied by symptoms of shock, usually with subsequent cardiac insufficiency compelling bed rest for a period of weeks following the attack. Most of these patients also exhibited electrocardiograms accepted as characteristic of myocardial injury. Those who did not had such typical histories and physical manifestations that there could be no doubt as to the nature of their attacks. We tried to include only cases in which the symptoms were attributable to disease of the coronary arteries, and excluded all cases of syphilitic aortitis, as well as all with aortic insufficiency of whatever origin.

Few statistics of the incidence of various types of heart disease are given in sufficient detail to make them available for comparison. We have checked table 2 on page 302 of White's [11] book and have been unable to convince ourselves that the diagnostic criteria of the various authors who have been drawn on are sufficiently uniform to warrant a direct comparison of their experiences, certainly not in the categorical manner in which they are made to appear. The data of White and Jones,[12] however, are specific enough to allow of a direct comparison. Their material, too, was drawn from a region in which rheumatic fever occurs with about the same frequency as in New York City. Table 3 presents a compilation of their experience with disease of the coronary arteries, and of ours.

In a series of 300 cases, Wood [13] found angina pectoris in 10 per cent of the white and in 5 per cent of the Negro race. In about the same number of cases observed in a chest clinic in Iowa, 7 per cent had angina pectoris, and 0.7 per cent coronary thrombosis.[14] Schwab and Schulze,[15] among 1,660 patients with organic heart disease seen in the outpatient department of a hospital in Texas, found 20 per cent with arteriosclerotic heart disease. The majority of these apparently had symptoms or signs of coronary artery disease. Thus, in a consultation practice among industrial workers we encountered twice as many cases of disease of the coronary arteries as did White and Jones, whose figures seem to be representative of the general experience. This is all the more remarkable in view of the age distribution of our patients, for in our series there is a predominance of the younger age groups. Eighty-four per cent of our whole series, as contrasted with 52 per cent of White's patients, were under the age of 50. Nor did we have an undue preponderance of males; 62 per cent of our series and 56 per cent of White's were males. In table 4 the incidence of angina pectoris in White's consultation series and in ours is tabulated according to age groups. Even at the same ages there is a much higher frequency of angina pectoris in our series.

The conclusion seems inescapable that in our clinical material, composed of Jewish industrial workers and their wives, disease of the coronary arteries is much more frequent than in other comparable published series. It seems that coronary sclerosis, far from finding the majority of its victims among individuals of wealth and learning, cripples with especial frequency at least certain groups of workmen.

Indeed, certain evidence suggests that the disease is more malignant among these workmen. This implication lies chiefly in the age distribution of our cases, compared to that of other published series. In table 5 the age distribution of 2,454 published cases is recorded. Whereas 71 per cent of our patients with coronary artery disease were under 51 years of age at the time of onset of their symptoms, the combined experience of all the other observers gives only 33 per cent of cases under the age of 51. Only Huchard [7] and Kahn and Barsky,[16] whose figures are respectively 50 and 60 per cent, approach our figures. It is most interesting to note that, at the time their paper was written, Kahn and Barsky were seeing the identical class of patients who form the subject of our analysis and that their figures most closely approximate ours. Conner and Holt [17] found that one third of their patients

TABLE 2.—*Age and Sex Distribution of Six Hundred and Fifteen Patients Referred for Cardiovascular Examination.*

Ages	1–10			11–20			21–30			31–40			41–50			51–60			61–70			71–80			Totals		
	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
Angina pectoris	..	..	..	..	..	..	..	..	..	9	5	14	23	5	28	10	5	15	3	1	4	..	..	..	45	16	61
Myocardial degeneration	..	..	..	1	0	1	..	..	..	5	0	5	31	4	35	6	4	10	2	0	2	..	..	..	45	8	53
Coronary thrombosis	..	..	..	..	..	..	..	..	..	7	0	7	30	2	32	14	0	14	4	0	4	..	..	..	55	2	57
Total coronary disease	..	...	..	1	..	1	..	..	..	21	5	26	84	11	95	30	9	39	9	1	10	..	..	..	145	26	171
Rheumatic	7	3	10	24	15	39	3	4	7	8	18	26	7	12	19	3	1	4	..	..	..	..	..	..	52	53	105
Noncardiac	4	5	9	18	11	29	3	2	5	7	9	16	26	8	34	3	3	6	4	0	4	..	..	..	65	38	103
Hypertension	..	..	..	..	..	..	0	1	1	6	13	19	20	26	46	8	10	18	1	6	7	1	0	1	36	56	92
Neurocirculatory asthenia	..	..	..	6	4	10	5	7	12	14	19	33	9	2	11	..	..	..	..	..	..	..	..	..	34	32	66
Functional systolic murmurs	13	5	18	9	5	14	0	1	1	2	4	6	3	1	4	1	0	1	..	..	..	..	..	..	28	16	44
Miscellaneous	0	1	1	2	1	3	1	2	3	3	4	7	8	1	9	2	0	2	..	..	..	..	..	..	16	9	25
"Thyroid hearts"	..	..	..	..	..	..	..	..	..	0	1	1	2	1	3	..	..	..	..	..	..	..	..	..	2	2	4
Congenital	1	1	2	..	..	..	1	0	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	1	3
Syphilis of aorta	..	..	..	..	..	..	..	..	..	..	..	..	1	0	1	1	0	1	..	..	..	..	..	..	2	0	2
Totals	25	15	40	60	36	96	13	17	30	61	73	134	160	62	222	48	23	71	14	7	21	1	0	1	382	233	615

M = male; F, female; T, total.

11. White, P. D.: Heart Disease, New York, Macmillan Company, 1931.
12. White, P. D., and Jones, T. D.: Heart Disease and Disorders in New England, Am. Heart J. **3**: 302 (Feb.) 1928.
13. Wood, J. E.; Jones, T. D., and Kimbrough, R. D.: The Etiology of Heart Disease, Am. J. M. Sc. **172**: 185 (Aug.) 1926.
14. Myers, M. M., and Peck, J. H.: Chest Clinics in Iowa, Am. Heart J. **3**: 287 (Feb.) 1928.
15. Schwab, E. H., and Schulze, V. E.: The Incidence of Heart Disease and of the Etiological Types in a Southern Dispensary, Am. Heart J. **7**: 223 (Dec.) 1931.
16. Kahn, M. H., and Barsky, Joseph: Angina Pectoris, Ann. Int. Med. **2**: 401 (Nov.) 1928.
17. Conner, L. A., and Holt, Evelyn: The Subsequent Course and Prognosis in Coronary Thrombosis, Am. Heart J. **5**: 705 (Aug.) 1930.

with coronary thrombosis had experienced their first attack before the fifty-first year of life, and they concluded that coronary thrombosis must be regarded as a disease of early middle life.

The organization from which our patients were drawn, and which has approximately 70,000 members, is composed largely of men in the third to fifth decades of life. Eighty-eight per cent of the members are between 20 and 50 years of age. This explains why so few of our patients are in the older age groups and

TABLE 3.—*Percentage Frequency of Coronary Artery Disease Among Cases of Heart Disease*

	Percentage Frequency Among All Cases of Heart Disease			
	White and Jones			Boas and Donner
	Consultation Practice 1,000 Cases	General Practice 1,000 Cases	Hospital and Dispensary 1,000 Cases	Consultation Practice, Workmen, 512 Cases
Angina pectoris	4.2	2.8	0.7	11.9
Angina pectoris and myocardial degeneration	7.7	10.0	5.9	10.3
Coronary thrombosis	4.2	2.3	0.6	11.1
Total coronary disease	16.1	15.1	7.2	33.3

why the percentage incidence of the cases under the age of 50 is so high. Yet, as is shown in table 4, in which White's cases and ours are arranged according to age groups, angina pectoris is much more frequent in our series at all ages. The very fact that the population from which our material is drawn is preponderantly young makes it all the more remarkable that one third of all the cardiac patients were suffering from disease of the coronary arteries.

It may be suggested that the marked discrepancy between our experience and that of others may be due primarily to different diagnostic criteria; that possibly we are too facile with the diagnosis coronary artery disease. That this does not obtain is shown by a study of the fifty-four cases of coronary artery disease seen by one of us in private consultation practice during the same period in which the workmen were observed. Here the age distribution corresponds to that of other observers; only 35 per cent were under the age of 51.

We can discover no unusual factors predisposing to disease of the coronary arteries in our patients. Hypertension was present in seventy-one, or 41.5 per cent of the cases. A systolic blood pressure of 150 or over was regarded as evidence of hypertension. This corresponds to the incidence of hypertension reported by Levine.[18] Two thirds of the patients with hypertension and coronary artery disease were under the age of 51—corresponding to the age distribution of the whole series. Thus an exceptionally high incidence of hypertension cannot be regarded as the cause of the frequency of coronary artery disease in the younger age groups.

In spite of the relative frequency of diabetes among Jews, only eight, or 4.7 per cent, of our series had diabetes. This contrasts with an incidence of 7 per cent found by Levine.[19] Thus the early development of coronary artery disease in these workmen cannot be attributed to an excessive frequency of diabetes. The experience of others has been that, as a complication of diabetes, angina pectoris or coronary thrombosis appears on the average at the age of 60.[20] The comparative youth of our patients probably explains the low incidence of diabetes.

We have divided our patients with coronary artery disease into three groups: those with angina pectoris, those with coronary artery sclerosis and myocardial degeneration, and those with coronary thrombosis. The criteria for these diagnoses have been indicated at the beginning of this paper. From table 2 it appears that the patients were fairly evenly divided among these three categories. There were sixty-one with angina pectoris, fifty-three with coronary sclerosis and myocardial degeneration and fifty-seven with coronary thrombosis. Thus, in about two thirds of the cases there was definite evidence of myocardial damage when first examined. The younger age groups, under 51 years, were represented in the same high proportion in those patients with coronary artery sclerosis and thrombosis as in those with symptoms of angina pectoris, but with no physical or electrocardiographic signs of myocardial disease. Since myocardial degeneration and coronary thrombosis is diagnosed on objective evidence, the high incidence of coronary disease cannot be explained by an increased nervous sensitivity of these patients, which might lead them to consult a physician on slight provocation.

Hypertension occurred in about one half of the patients with simple angina pectoris and with myocardial degeneration, and in one fourth of those with coronary thrombosis. In view of the frequent permanent drop in blood pressure following coronary thrombosis, this is readily explained. It is fairly safe to assume that most patients who have experienced coronary thrombosis and who have a low blood pressure but a large heart had hypertension before the attack. If these are added to the hypertension column, hypertension will be found as frequently among the group with coronary thrombosis as among the others.

Moderate or considerable cardiac enlargement was observed in more than one half of all the cases.

Twenty-six, or 15 per cent, of the 171 patients with disease of the coronary arteries were women, and 22 of these women had hypertension, often of considerable degree, whereas only one third of the men had hypertension. Sixteen of the twenty-six women were under the age of 51, corresponding to the age distribution of the men. Sixteen women had only symptoms of angina pectoris, eight had coronary sclerosis with myocardial degeneration, and only two had coronary thrombosis.

The reason for the high incidence of disease of the coronary arteries in our series which comprised largely individuals under the age of 50, is not apparent.

TABLE 4.—*Incidence of Angina Pectoris by Age Groups*

	White and Jones Consultation Series			Boas and Donner		
	Number of Cases		Percentage Frequency of Angina Pectoris	Number of Cases		Percentage Frequency of Angina Pectoris
Ages	Total	Angina Pectoris		Total	Angina Pectoris	
0–10	25	0	....	31	0	....
11–20	55	0	....	67	0	....
21–30	110	1	0.9	25	0	....
31–40	141	0	....	118	14	11.8
41–50	190	8	4.2	188	28	14.0
51–60	204	21	10.2	65	15	23.0
61–70	208	11	5.3	17	4	23.5
Over 70	67	1	1.5	1	0	....

18. Levine, S. A.: Coronary Thrombosis: Its Various Clinical Features, Baltimore, Williams & Wilkins Company, 1929.

19. Levine, S. A.: Angina Pectoris: Some Clinical Considerations, J. A. M. A. 79: 928 (Sept. 16) 1922.

20. Levine (footnote 18). Root, H. F., and Graybiel, Ashton: Angina Pectoris and Diabetes Mellitus, J. A. M. A. 96: 925 (March 21) 1931.

We have shown that it is not determined by an undue frequency of hypertension or diabetes mellitus. Nor does obesity play a rôle. All the patients were Jews, and it is possible that there is a racial predisposition. Both Edens [21] and White [22] have remarked that Jews seem especially prone to this disorder, although they offer no data to fortify their statements. White believes that disease of the coronary arteries is also more common in Italians. In this connection it is interesting to recall the supposed rarity of angina pectoris among Negroes, and the finding of Schwab and Schulze that arteriosclerotic heart disease occurs less frequently among Negroes.

TABLE 5.—*Age Distribution of Published Cases of Coronary Artery Disease*

	Ages								
	11 to 20	21 to 30	31 to 40	41 to 50	51 to 60	61 to 70	71 Plus	Total Cases	Per Cent Under the Age of 50
Forbes *	..	..	..	12	...	...	72	84	14.3
Huchard [7]	3	5	44	87	59	45	34	277	50.0
Osler: Lancet 1:697, 1910	..	9	41	59	81	62	16	268	40.0
Herrick-Nuzum: J. A. M. A. 70: 67 (Jan. 12) 1918	..	..	..	32	84	48	36†	200	16.0
Gallavardin [8]	..	2	36	139	186	97	16	476	37.1
Phillips [6]	..	2	5	32	73	44	18	174	22.4
Brooks [9]	..	1	..	72	130	101	25	329	22.0
Edens [21]	..	1	9	46	69	50	12	187	30.0
Levine [18]	..	..	3	29	44	55	14	145	22.0
Priest: Illinois M. J. 60: 319 (Oct.) 1931	..	..	3	13	29	10	5	60	26.6
Boas (private)	..	..	5	14	20	12	3	54	35.1
Kahn-Barsky [16]	..	..	43	78	55	22	2	200	60.5
Total	3	20	189	613	830	546	253	2,454	33.6
Boas-Donner	1		26	95	39	10		171	71.3

* J. Forbes (Cyclopedia of Practical Medicine, London, 1833) just divides his patients into two groups, those below 50 and those above 50.
† The age of these thirty-six patients is not mentioned, except that they were not under 50.

The frequency of angina pectoris among Jews and Italians, and its rarity among Negroes, has usually been explained by their differing "nervous constitution." The high strung, sensitive individual is supposed to develop symptoms of angina pectoris more readily than one who is phlegmatic and care free.

Czyhlarz [23] in this way explained his observation that at the Allgemeine Krankenhaus in Vienna, where the patients for the most part are of the "neurasthenic middle classes," there is much angina pectoris, while at the Franz Josef Hospital in the same city, where the patients are chiefly manual workers, the disease is rare. A hypersensitive nervous system may send a greater proportion of patients to consult a physician, but it does not account for the development of the underlying atherosclerosis of the coronary arteries, nor does it explain the many coronary thromboses, coming without previous warning and first drawing attention to the cardiac incapacity. It will be recalled that one third of our patients had coronary thrombosis, and another third evidences of myocardial degeneration. We are inclined to the belief that the nervous system plays a secondary rôle in the genesis of the syndromes of coronary artery disease, and that some unknown factors are more fundamental. Whether heredity, occupation or diet are important in this connection remains a matter for speculation.

We have gained the impression that, roughly speaking, there are two types of disease of the coronary arteries. The one occurs as a phase of a general arteriosclerosis; it is part of the process of senescence. It is encountered in the elderly, in men over the age of 60, who have hardened and tortuous peripheral arteries, dilated sclerotic aortas, and often a well marked arcus senilis. In these patients the interference with the blood supply of the heart is but an incident of the general arterial disease. The second type occurs in young vigorous men between the ages of 35 and 50 who give few other indications of arterial disease but who may have an essential hypertension. In them the cardiac signs and symptoms stand out as the only evidences of body deterioration. In them, too, it seems as though the progress of the disease was more malignant.

21. Edens, Ernst: Die Krankheiten des Herzens und der Gefässe, Berlin, Julius Springer, 1929.
22. White, P. D.: Prognosis of Angina Pectoris and of Coronary Thrombosis, J. A. M. A. 87: 1525 (Nov. 6) 1926.
23. Czyhlarz, E.: Zur Lehre der Angina Pectoris, Wien med. Wchnschr. 74: 2541, 1924.

SUMMARY

An analysis was made of 615 males and females of the industrial class in New York City who were referred with the presumptive diagnosis of heart disease. Eighty-eight per cent of the population from which these patients were drawn were under the age of 50. Almost one third of the 615 referred patients had disease of the coronary arteries. Of those with disease of the coronary arteries, 71 per cent were under the age of 51. This represents an exceptionally high frequency of coronary artery disease, which is all the more remarkable in view of the preponderance of individuals under the age of 50. Our data demonstrate that coronary artery disease, contrary to general belief, is more common, and occurs earlier in life, at least in certain groups of industrial workers. They suggest the desirability of further studies along similar lines with different racial and occupational groups.

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HOOKWORM DISEASE IN WHITE SCHOOL CHILDREN

COMPARISON OF TWO METHODS OF SURVEY

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It is rather generally acknowledged that a microscopic examination should precede treatment in all cases of hookworm disease. This view is based on sound experience and sound theory. The microscopic examination is especially important if carbon tetrachloride is to be used in treatment, for if the case is complicated with Ascaris infection, the clinician should know this fact before treatment is instituted.

Opinion is perhaps not nearly so unanimous as to whether one is justified in drawing conclusions regarding the status of hookworm disease on the basis of symptoms observed in a brief inspection of school children unless the diagnosis is made and confirmed in the individual cases by microscopic examination. My position in this matter is that any person experienced in the clinical side of this infection is thoroughly justified by a brief inspection (sometimes referred to as "street car diagnosis") of white children in arriving at conclusions as to whether hookworm disease is playing any material rôle among the children and that for purposes of general estimate the only additional support necessary for a survey of this kind is an occasional check up with the microscope by the person making the inspection or a record of definite microscopic examinations showing that hookworm disease has been demonstrated in the school or in the immediate locality in question. In

severe and marked cases it is difficult for an experienced inspector or clinician to go astray in his conclusions in this disease among white children; his mistakes occur in the very light cases or in cases of other conditions, (such as Ascaris infection, and malnutrition) simulating hookworm disease. I am, of course, aware that some of my colleagues, especially laboratory workers, are not in full accord with me in this view.

Through the cooperation of Dr. Floyd Johnson, county health officer, and Prof. C. C. Russ, county superintendent of education, of Columbus County, North Carolina, I am able to present some comparative data obtained by the two methods in question. I have recently surveyed the children of five rural white schools in Columbus County by the symptomatic method, without stopping to make microscopic examinations. All these five schools, however, were definitely known to me in former years to have had hookworm cases among the pupils.

Specimens for microscopic examination were forwarded by Dr. Floyd Johnson from two of the schools and from one additional school not included in the symptomatic survey. The comparative results obtained by the two methods are shown in table 1.

this school also the "widespread impression that hookworm disease in man has almost disappeared from the United States . . . is not confirmed by theoretical considerations, by laboratory examinations or by clinical observations." It is interesting to note that a prominent resident in this town said that hookworm was formerly very prevalent in his locality but that it had been eradicated.

As stated in another paper of this series, persons working by the quick method should hold in mind the theoretical error, which varies according to conditions of light, and so on; they are justified in estimating the approximate prevalence of hookworm disease of a school on this basis, but, as already emphasized several times, they are not justified, in my opinion, in instituting mass treatment, at least in this country, where a microscopic examination can be obtained free of cost to the patient.

In comparing the figures obtained in schools 14 and 15a (77 and 79 per cent) based on the symptomatic method with those (97 and 90 per cent) based on the microscopic method, it is seen that the former are distinctly conservative; for all practical purposes, in judging whether this infection is of educational and

TABLE 1.—*Comparative Results Obtained by Two Methods*

Symptomatic Survey Method					Microscopic Method			
		Hookworm Suspects *					Hookworm Positives †	
School Number	Number of Children Seen	Number	Per Cent Uncorrected	Per Cent Corrected ‡	School Number	Number of Children Examined	Number	Per Cent
11	474	228	48	38	11	..	..	..
12	345	132	38	30	12	..	..	..
13	478	366	77	62	13	..	..	..
14	73	70	96	77	14	37	36	97
15a	79	78	99	79	15a	87 §	78	90
15b	...	...	..	..	15b	42	28	67
Total 6 schools	1,449	874	60	40	3 schools	166	142	86

* Includes all gradations from very severe cases, such as dirt eaters, to doubtful suspects.
† Includes all hookworm infections from severe infestations to exceedingly light infections, such as carriers.
‡ Deduction of 20 per cent for average theoretical error.
§ Seven of these were of preschool age and were not seen in the original clinical survey.

As a few of the children may be absent from one of the examinations but present in the other, the figures in table 1 are, of course, a comparison of the index of the children in general and not a mathematically exact analysis of 100 per cent identical children. The data here presented are not only a comparison between the two methods of estimates (one taking from less than an hour to at most two hours for each school; the other requiring many hours of work in collecting and examining the specimens); but the data represent also microscopic confirmation of the assertion in another paper that the "widespread impression that hookworm disease in man has almost disappeared from the United States . . . is not confirmed by theoretical considerations, by laboratory examinations or by clinical observations."

In the clinical survey, a portion of a school (number 28) in another state was inspected. Among sixty-one pupils seen, fifty children, or 82 per cent (corrected estimate 66 per cent), were selected as having hookworm disease and as suspects.

Thirty-three specimens were obtained from this school for microscopic examination and, of these, sixteen, or 48.5 per cent, were positive for hookworm. There is no way of knowing how many of these thirty-three children were among the sixty-one pupils seen in the symptomatic survey, nor is this matter of any particular importance. The important point is that for administrative importance to the school, the conclusion reached is as sound and valuable (perhaps more so) as (than) the conclusion based on the microscopic observations, for the latter considers only the worms, while the former considers the effect of the worms on the children.

TABLE 2.—*Microscopic Examination of Four Schools (Numbers 14, 15a, 15b, 28)*

Total number of schools (in two counties, two states) in question	4
Total number of children examined microscopically	199
Positive for hookworms only	104
Positive for hookworms and Ascaris only	44
Positive for hookworms, Ascaris and Enterobius only	3
Positive for hookworms and Enterobius only	5
Positive for hookworms and Trichuris only	1
Positive for hookworms and undetermined nematode egg	1
Total positive for hookworms	158
Positive for Ascaris only	6
Total positive for Ascaris	53
Positive for Enterobius only	3
Total positive for Enterobius	11
Total positive for Trichuris	1
Total positive for an undetermined nematode egg	1
Total number of children infected by one or more species of worm	167
Total percentage of children infected by one or more species of worm	84

The worm statistics cited for the seven schools have been confined entirely to hookworm infection. Taking other intestinal worms into account also, I obtained the data on the basis of microscopic examination in table 2.

SPECIFIC IMMUNOTRANSFUSION IN THE TREATMENT OF SEPTICEMIA

REPORT OF A CASE

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AND
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The treatment of septicemia is frequently attended with great difficulties. Physicians often clamor for something specific and fall victims to many of the newer chemicals alleged to be of value in combating infections of the blood stream. In 1919, Sir Almroth Wright[1] pointed out several important principles in the treatment of septicemia: First, that adequate surgical drainage of infected foci is extremely important. Second, that it is possible to produce nonspecific bactericidal agents by inoculating blood in vivo or in vitro with different types of killed organisms; that such blood, from six to eight hours after the vaccination, has definite curative effects in many types of infections of the blood stream. Third, that specific immunization is of even greater value than the nonspecific procedures noted. Fourth, that ordinary blood transfusions may actually do harm in infections of the blood stream. He reported a case of septicemia treated with nonspecific immunotransfusion, with recovery.

In 1923, Colebrook and Storer[2] described their technic of nonspecific immunotransfusion. Comparatively little practical use has been made of their observations. More clinical application of nonspecific immunotransfusions should be made, because of their simplicity and possible good effect.

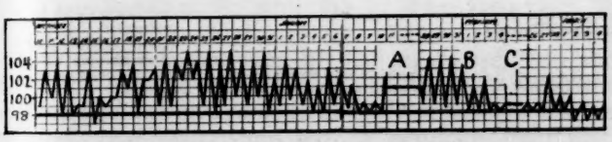

Chart 1.—Rectal temperature, with two gaps indicated by horizontal broken lines, through which periods there was little significant change: *A*, no significant change in remittent fever during this period; *B*, specific immunotransfusion; *C*, normal during this period.

Specific immunotransfusions require the aid of a competent bacteriologic laboratory. It is time consuming, but if one is fortunate in keeping the patient alive for four or five weeks and if the infection does not progress to a pyemic state, specific immunotransfusion may be a life-saving measure. Linser,[3] in 1925, and Hébert,[4] in 1928, reported favorable results with specific immunotransfusions in septicemia.

Our object in this paper is to report a case of septicemia due to Streptococcus hemolyticus occurring in a child, aged 9 years, who was treated by the usual methods without improvement. Treatment with blood from a specifically immunized donor produced remarkable improvement and led to the ultimate recovery of the patient. The treatment and laboratory studies will be reported in some detail.

From the Division of Pathology and Clinical Pathology of the Laboratories of the Philadelphia General Hospital.

1. Wright, A. E.: New Prospects in the Field of Therapeutic Immunization, Lancet **1**: 489 (March 29) 1919.
2. Colebrook, L., and Storer, E. J.: Immunotransfusion, Lancet **2**: 1341 (Dec. 22), 1394 (Dec. 29) 1923.
3. Linser, P.: Treatment of Sepsis with Immunized Blood Serum, München. med. Wchnschr. **72**: 1281 (July 31) 1925.
4. Hébert, P.: Cure of a Case of Septicemia by Transfusion of Blood from Immunized Person, Bull. et mém. Soc. méd. d. Hôp. de Paris **52**: 1354 (July 26) 1928.

REPORT OF CASE

History.—E. P., an Italian boy, aged 9 years, admitted to the Children's Ward of the Philadelphia General Hospital, had been perfectly well until Dec. 3, 1930, when he first complained of headache. This was accompanied by some elevation in temperature. In spite of treatment by his family physician, his condition grew worse. A painful swelling appeared in the left temporal region. He became delirious at night and intermittent fever persisted. The patient was hospitalized. The past medical history was negative except for a tonsillectomy in 1929. The family history was irrelevant.

Examination.—The boy was markedly undernourished, quite ill, and in a semistuporous condition. The skin and mucous membranes were dry. Examination of the head revealed a tense, tender, painful, nonfluctuant swelling measuring 7 by 5 by 1 cm. in the left temporal region. The ears, eyes and nose were normal. There was no tenderness over any of the para-

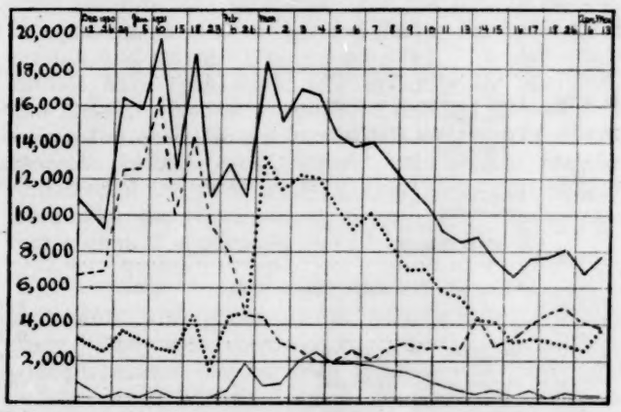

Chart 2.—Total and differential leukocyte counts expressed in absolute numbers throughout the hospitalization period: heavy solid line, total number of leukocytes; broken line, polymorphonuclears; dotted line, lymphocytes; light solid line, monocytes. Immunotransfusion, February 1.

nasal sinuses. The mouth presented sordes at the left angle and a dry, red tongue. The teeth were in excellent condition. The pharynx was slightly injected. The tonsils were missing. The neck was normal except for palpable nodes at the angles of both jaws. The chest wall was emaciated; the lung fields showed nothing of note. The heart was not enlarged; the rate was rapid and the rhythm regular. No murmurs were heard. The blood pressure was 108 systolic and 86 diastolic. The liver and spleen were not palpable. Some hyperperistalsis was noted. The genitalia and extremities were normal. No abnormal reflexes were elicited.

Laboratory Studies.—Roentgenographic studies of the chest and teeth were negative. The ethmoid cells and left antrum showed some haziness and were considered suspicious foci of infection. The blood showed a neutrophilic leukocytosis. The

TABLE 1.—*Blood Cultures*

Date	Culture	Organisms
Dec. 13, 1930	Positive	Streptococcus hemolyticus
Dec. 18, 1930	Positive	Streptococcus hemolyticus
Dec. 21, 1930	Positive	Streptococcus hemolyticus
Jan. 8, 1931	Positive	Streptococcus hemolyticus
Jan. 15, 1931	Positive	Streptococcus hemolyticus
Jan. 24, 1931	Positive	Streptococcus hemolyticus
Feb. 1, 1931	Transfusion of immunized blood, 150 cc.	
Feb. 6, 1931	No growth	
Feb. 19, 1931	No growth	
Feb. 26, 1931	No growth	

Widal reaction was negative. A blood culture was positive for Streptococcus hemolyticus. No ova or parasites were present in the stools. The spinal fluid was normal.

Clinical Course.—Blood cultures were repeatedly positive for Streptococcus hemolyticus (table 1). The child had chills and fever almost daily (chart 1) and a varying polymorphonuclear leukocytosis. He lost much weight and his general condition grew steadily worse in spite of surgical, chemical, serologic and ordinary blood transfusion therapy. (A complete summary of

treatment is given in table 2.) Anticipating that the therapeutic measures outlined in table 2 might not be curative, we started early to prepare a specifically immunized donor. We selected a donor who had previously been used with no beneficial effects for a transfusion of the patient. This donor was immunized with a vaccine prepared from the bacteria isolated from the patient's blood stream (table 3).

At weekly intervals for four weeks the donor received subcutaneously increasing numbers of killed organisms, beginning with 50 million and reaching 250 million. One week following the last injection the donor was bled of 150 cc. of blood and a transfusion of the patient was performed by the citrate method. No reaction followed the transfusion. Forty-eight hours after this transfusion his temperature came down to the normal level for the first time. Blood cultures thereafter were negative (table 1).

Agglutination studies with the causative organisms were done with the donor's and the recipient's blood serum, serum from convalescent erysipelas patients and serum used in the treatment of scarlet fever (table 4).

Three weeks following the immunotransfusion, the patient developed marked, right-sided, anterior, cervical adenopathy, coryza, a slightly injected throat and fever. The blood revealed a white cell count of 11,000; neutrophils were 41 per cent and lymphocytes 59 per cent, the latter being mostly of the young large forms.

Four days later the white count rose to 18,200, with 22 per cent neutrophils and 88 per cent young large lymphocytes. Daily blood studies were made of this phase (chart 2). The blood continued to show a marked absolute lymphocytosis; gradually the white cell count fell to normal and in about two weeks the differential approached normal. An increasing agglutination titer was observed during the latter phase of the disease (table 4).

TABLE 2.—*Treatment Received Previous to Transfusion with Immunized Blood*

Date	Chemical Agents	Biologic Preparations	Transfusions: Donor	Transfusions: Amount	Surgical Procedures	Comment
12/17/30	.....	10 cc. antistreptococcic polyvalent serum intravenously				
12/18/30	.....	20 cc. of same				
12/19/30	.....	.....	.....		Incision and drainage of abscess over left temporal region	Streptococcus hemolyticus
					Left antrum irrigated	Clear fluid obtained
12/21/30	.....	.....	.....		.....	Developed hives and adenopathy
12/23/30	Pregl's iodine, 10 cc. intravenously	.....	.....		.....	Temperature, 105; patient critically ill
12/26/30	Pregl's iodine, 10 cc. intravenously	.....	.....		.....	Temperature, 105
12/27/30	.....	.....	Citrated blood	150 cc.	.....	No reaction
12/30/30	.....	.....	D. P. brother	150 cc.	.....	No reaction
12/31/30	Pregl's iodine, 10 cc. intravenously					
1/ 3/31	Metaphen, 10 cc. of 1:1,000 intravenously					
1/ 4/31	.....	.....	.....		.....	Bloody diarrhea and tenesmus, 2 days' duration
1/ 5/31	.....	.....	B. D.	150 cc.	.....	No reaction
1/ 6/31	.....	.....	B. D.	150 cc.	.....	No reaction
1/10/31	.....	.....	R. B.	150 cc.	.....	Violent reaction
1/14/31	Metaphen, 5 cc. of 1:1,000 intravenously	.....	.....		.....	No reaction
1/20/31	Metaphen, 5 cc. of 1:1,000 intravenously	.....	Own blood injected 5 cc. in thigh		.....	No reaction
1/23/31	Metaphen, 5 cc. of 1:1,000 intravenously	.....	Own blood injected 5 cc. in thigh			
1/24/31	.....	.....	W. B.	50 cc.	.....	Transfusion stopped; severe reaction
1/26/31	Metaphen, 5 cc. of 1:1,000 intravenously					
1/30/31	.....	.....	Own blood injected 5 cc. in thigh			
2/ 1/31	.....	.....	D. P. (immunized blood)	150 cc.	.....	Fever came down to normal in 48 hours; blood cultures thereafter were negative
2/ 8/31	.....	.....	.....		Incision and drainage of swelling on right side of neck	Streptococcus hemolyticus

TABLE 3.—*Preparation and Progress of Donor*

Donor, D. P., Age 19, Brother of Patient, Type 2 Moss.

Date	Vaccination Dose in Millions Subcutaneously	Reaction	Agglutination	Blood Removed for Transfusion	Comment
12/30/30	...	.....	....	150 cc.	Nonimmunized
1/ 4/31	50	None	....	.....	
1/11/31	100	.....	....	.....	
1/12/31	...	Sore throat, coryza and malaise lasting one day	....	.....	
1/18/31	200	Headache, xerostomia, sore throat, epistaxis, general aches and pains	....	.....	Confined to bed 2 days
1/25/31	250	None	....	.....	
2/ 1/31	...	.....	1:80	150 cc.	Felt weak for one day

TABLE 4.—*Agglutination Studies Against Causative Organisms*

	Dilution
Donor's blood serum	
At time of immunotransfusion	1:80
Four weeks after	1:640
Patient's blood serum	
Two weeks after	1:640
Four weeks after	1:1,280
Other serums	
Convalescent erysipelas blood serum	No agglutination
Scarlet fever antiserum	No agglutination

COMMENT

A case of Streptococcus hemolyticus septicemia was cured by transfusion from a specifically immunized donor, after five 150 cc. and one 50 cc. nonmodified blood transfusions had failed. In addition to the latter, surgical drainage of suspicious foci, Pregl's solution of iodine, intravenous injections of metaphen, polyvalent antistreptococcus serum and autohemotherapy were used without avail.

The blood picture from the beginning of the illness until three weeks following the immunotransfusion was one of a neutrophilic leukocytosis. A definite

lymphocytic leukocytosis then occurred. At first large young lymphocytes appeared that were difficult to differentiate from monocytes, but, as time went on, these cells matured and were more easily identified. This reaction was accompanied by fever, adenopathy and a rising serum agglutination titer. The blood picture gradually returned to normal.

Nonspecific immunotransfusion should be performed primarily in septicemia. Specific immunotransfusion should be made possible by early isolation of the causative organism, preparation of a vaccine and active immunization of a suitable donor.

Cooperation between bacteriologist and attending physician is most important.

EDEMA AS INFLUENCED BY A LOW RATIO OF SODIUM TO POTASSIUM INTAKE

CLINICAL OBSERVATIONS

M. HERBERT BARKER, M.D.
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The purpose of this paper is to present a few of many observations made on cases of edema which have been influenced chiefly by the dietary mineral control. This material is offered only as evidence of the probable importance of the daily intake of sodium and potassium in the control of chronic cases of disturbed water balance of cardiac and renal origin.

It is not necessary to enter into a long discussion of sodium, potassium, the chlorides and acid-base equilibrium, which have been so ably discussed by Blum, Widal, Bunge, Peters, Van Slyke, Keith and many others included in the editorials of THE JOURNAL. It is sufficient to say that there have been repeated statements of the importance of sodium rather than the chlorides in fluid storage and that there is abundant evidence of the antagonistic or the displacing influence of sodium by potassium with a resultant fluid loss. However, no definite program has come out of this great amount of work which has been of real practical clinical use.

Important advances have been made by Haldane, Keith, Gamble, Linder, their co-workers and others who have shown the great influence that acid-forming salts (calcium chloride, ammonium chloride, ammonium nitrate) and the mineral acids (hydrochloric acid) have on base excretion and water balance. The important relation of serum osmotic pressure to edema as influenced by the levels of the serum proteins has been emphasized by Starling, Epstein, Van Slyke, Leiter, Barker and Kirk, Shelburne and Egloff, and others. The rôle played by the motor power of the heart, the quality of the blood and renal function need no emphasis. Realizing that there are many influences concerned in controlling body fluid equilibrium, any one or all of which may be at fault at the same time in an edematous patient, I wish to suggest that a dietary regimen in which the sodium and potassium intake are carefully controlled can be instituted which may bring about an occasional clinical improvement after all other measures seem to have failed.

Read in part before the Chicago Society of Internal Medicine, Dec. 15, 1930.

From the Departments of Medicine and Physiology of Northwestern University School of Medicine and the Medical Department of Passavant Memorial Hospital.

EXPERIMENTAL EVIDENCE

In the course of study of experimental edema, the possibility of throwing further light on some of the clinical observations immediately suggested itself.[1] As a result, a series of experiments was planned whereby dogs were made edematous or potentially edematous by reducing their blood serum proteins. Various salts were added to their diets and the most striking of these experiments were those in which sodium and potassium chloride were given.[2] When sodium chloride was added to the diet of such potentially or slightly edematous animals, fluid storage was prompt and often marked (as much as 40 per cent of the animal's weight in five days) and continued as long as sodium chloride was given. If sodium chloride was omitted, the edema would very gradually wear away. If, however, potassium chloride was substituted for the sodium chloride in equal amounts at any period during fluid storage, a prompt and marked diuresis occurred. Similar observations have been made independently by Shelburne and Egloff.[3] Not only would the animals lose all their edema but their weight would run below that of the control periods even though the serum proteins remained at the same levels. When these observations were made and repeatedly confirmed, it became obvious that a clinical application should be attempted.

CLINICAL SODIUM-POTASSIUM STUDIES

Patients with gross edema were selected for this study. They were chiefly of two classes; first, cases in which treatment had not been given so that they might be considered untreated cases; and, second, those in which all the present-day accepted forms of treatment had been given either without improvement or, if improvement had occurred in the past, with present failure.

The first step taken was to restrict the sodium intake in all its forms, the fluid intake being unregulated. Occasionally, a rather remarkable and prolonged improvement would occur following this one change alone. Going into the diet of these cases, it was found all too frequently that a patient with severe congestive heart failure, although he was on a salt poor diet and taking full doses of digitalis, together with ammonium chloride or ammonium nitrate and diuretics, was allowed at the same time large quantities of citrus fruits, or baking soda for gas and distention, or was given alkaline waters by his physician. It was immediately obvious why the salt free diet, digitalis and the diuretic regimen had failed.

The second step consisted in giving the patient a full maintenance diet of foods which were thought to be adequate in every respect except that the foods containing sodium were restricted when possible, while foods high in potassium were given. It is difficult to get a patient to take a diet for a long period unless it meets the physiologic requirements, and he will find great difficulty in taking any diet without salt. Both objections have been quite overcome by making the diet very liberal and by allowing the patient to shake potassium chloride on his food for taste. To make diets successful in the ambulatory clinic, they must be simple in outline. The plan now in use in the renal clinic at

1. Barker, M. H., and Kirk, E. J.: Experimental Edema in Dogs in Relation to Edema of Renal Origin in Patients, Arch. Int. Med. 45: 319 (March) 1930.

2. Barker, M. H.: The Effect of Low Proteinemia as Related to Specific Ions, read in a symposium on the kidney in health and disease at Minneapolis in July, 1930.

3. Shelburne, S. A., and Egloff, W. C.: Experimental Edema, Arch. Int. Med. 48: 51-69 (July) 1931.

Northwestern University Medical School is scheduled in tables 1 and 2.

When the diet outlined in the tables is started, 5 Gm. (one teaspoonful) of potassium chloride crystals is placed in a salt shaker in the morning. The patient uses from the shaker all he wishes on his food during the day and at the end of the day places the remainder in water and drinks it. It may be necessary to give more potassium chloride to promote diuresis in obstinate cases of the nephrotic type, but 5 Gm. is ordinarily sufficient in the edemas of cardiac or cardiovascular origin. In a few cases, a rather severe dehydration has resulted, so that the potassium chloride had to be reduced greatly or omitted for a time. Such cases, however, appear to be rare.

TABLE 1.—*Diet: Low Sodium-High Potassium with Acid Excess*

Fruits
3 servings daily, fresh or stewed, but should include either prunes, plums, cranberries or currants once daily.

Vegetables
2 large servings daily, especially beets, carrots, brussels sprouts, yellow corn, kohlrabi, lettuce, mushrooms, peas, spinach, kidney beans, parsnips.

Meat
2 servings daily.

Eggs
2.

Milk
1 glass.

Cream
½ glass.

Butter
Salt-free, 6 squares.

Cereal
Oatmeal or wheatena; farina, puffed wheat or rice occasionally.

Bread
Graham bread, 3 large slices or 6 small slices daily.

Rice, macaroni or spaghetti
1 serving daily.

Potato
1 serving.

Jelly, preserves or honey
2 level tablespoons.

Sugar
ad libitum—at least 1 tablespoonful.

NOTES

All foods are to be prepared without salt and no salt is to be served with meals. Potassium chloride (from 2 to 5 Gm. in shaker) may be given as salt substitute. Spices—cinnamon, sage, paprika, pepper, cloves, nutmeg, allspice—may be used. Small servings of citrus fruits may be added after fluid volume is established. Additional vitamin D to be supplied.

Coffee or tea, 1 cup daily.

A neutral diet may be obtained in one of the following three ways:
1. Reduction of meat, rice, macaroni, bread, cereal.
2. Increase of fruit and vegetables.
3. Addition of figs, molasses, raisins.

The latter method is recommended.

This diet is designed preferably for the treatment of convalescent and ambulatory patients. Very ill patients will have difficulty in eating all the diet, in which event, the diet may be reduced, the same food substances to be given, but in smaller amounts.

CHEMICAL STUDIES

Frequent determinations of the sodium, potassium, calcium, carbon dioxide combining power, p_H and cholesterol of the blood were done. No attempt will be made to discuss the results of these observations except to state that in general nothing striking appeared.[4] No significant changes in blood sodium or potassium were noted. Certainly there was no potassium storage as measured by increased levels in the blood stream. Tissue sodium and potassium determinations were not made. Occasionally a slight elevation of potassium above the control level of 17 to 19 mg. to a level of 21 to 25 mg. was noted after a few days, but this always fell back to the original level in one or two weeks. Blood serum proteins occasionally were reduced in the edemas of cardiac origin and they would return to normal as the edema reduced. Brown and Rowntree[5] have indicated that hydremic plethora does not exist in nephrotic and cardiac edemas in which there is no anemia, but the frequent apparent concentration of the proteins following diuresis in this group of cases speaks for some dilution. No shift in acid-base equilibrium was noted even after months of such management, which is in contrast to the acid-base balance following the administration of full doses of calcium chloride and hydrochloric acid.

4. The mass of clinical observations and the chemical data accumulated in the study will be published elsewhere.

REPORT OF CASES

The following case reports will serve to illustrate the types of patients used in the study and some of the results obtained.

CASE 1.—E. S., a man, aged 56, a manufacturer, came with a history of weakness, dyspnea, orthopnea, irregular heart action, edema and ascites of five years' duration. A past history of chorea, rheumatic fever or syphilis could not be obtained. His symptoms had been slight at the beginning and he had been relieved by digitalis. Later, his symptoms became more severe and he was again quite relieved by taking ammonium chloride. In 1929, he became severely edematous and was forced to give up work. When I first saw him, in July, 1930, he was taking 0.1 Gm. of digitalis leaves three times daily, from 6 to 8 Gm. of ammonium chloride daily, and salyrgan once or twice a week.

The patient was a large man with marked dyspnea, orthopnea, and cyanosis of the lips, hands and lower extremities. He was coughing up large quantities of liquid sputum. The pupils reacted to light and the fundi were not remarkable except for

TABLE 2.—*Sample Menus*

1	2	3
Breakfast	*Breakfast*	*Breakfast*
Stewed currants	Plums	Stewed prunes
Oatmeal	Wheatena	Farina
Two poached eggs	Scrambled eggs	Soft cooked eggs
Graham toast	Graham toast	Graham toast
Sweet butter	Sweet butter	Sweet butter
Honey	Jelly	Honey
Cream	Cream	Cream
Sugar	Sugar	Sugar
Dinner	*Dinner*	*Dinner*
Roast beef	Broiled steak	Broiled lamb chop
Mashed potatoes	Buttered macaroni	Buttered spaghetti
Buttered beets	Stewed tomatoes	Buttered spinach
Sliced peaches	Banana salad	Grapefruit cup
Graham bread	Graham bread	Graham bread
Sweet butter	Sweet butter	Sweet butter
½ glass milk	½ glass milk	½ glass milk
Supper	*Supper*	*Supper*
Broiled chicken	Broiled liver or sweetbreads	Broiled whitefish
Buttered rice	Baked potato	Mashed potatoes
Jelly	Celery salad	Buttered brussels sprouts
Lettuce salad	Cherries	Pineapple and nut salad
Orange cup	Graham bread	Graham bread
Graham bread	Butter	Sweet butter
Sweet butter	Jelly	Jelly
½ glass milk	½ glass milk	½ glass milk

Menu	Protein	Fat	Carbohydrate	Cal.	Vitamin A	Vitamin B	Vitamin C	Vitamin D	Vitamin E
1....	89.3	140.4	235.9	2565	++++	+++	+++	+	++
2....	77.2	131.4	215.7	2355	++++	+++	+++	+	++
3....	84.2	130.1	227.6	2417	++++	+++	+++	+	++

Mineral Content

Ca	Mg	K	Na	P	Cl	S	Fe	Acid	Base
0.660	0.278	3.362	1.126	1.514	1.485	1.139	0.0177	46.4	34.0
0.627	0.268	3.263	1.038	1.332	1.556	0.975	0.0156	42.6	34.6
0.638	0.299	3.483	1.061	1.471	1.47	1.177	0.0168	45.4	40.5

5. Brown, G. E., and Rowntree, L. G.: The Volume and Composition of the Blood and Changes Incident to Diuresis in Cases of Edema, Arch. Int. Med. **35**: 129 (Jan.) 1925.

some caliber changes and narrowing of the arteries with nicking at the arteriovenous crossings. The chest was barrel-shaped. There were no signs of fluid, but there was a large amount of moisture all through the bases. The heart was enlarged to percussion, the right border dulness being 4 cm., the left border 13 cm. and the base seemed not to be increased. No thrills were felt, but the apex was forceful. The rhythm was absolutely irregular, with a pulse of 56 and an apex rate of 88. A rough blowing systolic murmur was heard at the apex and transmitted to the base. There were no diastolic murmurs. Abdominal examination revealed a large amount of ascites and a tender liver 8 cm. below the costal margin. The lower extremities showed marked cyanosis and deep pitting edema.

The blood pressure was 156 systolic and 90 diastolic. The blood showed: red blood cells, 4,990,000; white blood cells, 9,600; hemoglobin 77 per cent (Newcomer). The Wassermann and Kahn tests were both negative. The urine showed a specific gravity of 1.018 and a slight trace of albumin, and was acid. The sediment showed an occasional hyaline and granular cast and an occasional white blood cell, but there were no red blood cells. Electrocardiography showed auricular fibrillation with a rather low electromotive force and considerable spread and slurring of the QRS complex. The T waves were inverted in lead 3 and they were regarded as a digitalis effect in that they became upright when digitalis was omitted.

A diagnosis of chronic myocarditis with auricular fibrillation, probably of hypertensive origin, was made, and after five days the patient was placed on the diet low in sodium with normally high potassium. All other medication was stopped, but he was given 5 Gm. of potassium chloride daily to shake on his food. As he had been ambulatory at home, he was discharged from the hospital so that he would be in his most natural state. Two days after starting this regimen, he noted a slight increase in the volume of urine and a decrease in body weight (chart 1). His weight fell from 92 to 75 Kg. in thirteen days and at that time he was entirely free from edema, and his skin hung in folds. Under this marked edema, which he had carried for years, there was rather severe wasting of the muscles. The liver gradually decreased in size and six months later his cough had cleared up and he was back at his work. Now, after a year and a half, he is very active; he feels well and has no cardiac symptoms. About one month after starting the diet he became extremely dehydrated, so the potassium was reduced to 2 Gm. daily and he was allowed small feedings of citrus fruits. He has been more careless of his diet in the past six months but, on the whole, he adheres closely to the plan outlined and seems remarkably well. He has taken 0.2 Gm. of digitalis folia daily during the past six months because the heart rhythm is more regular, but no symptomatic benefit has been observed.

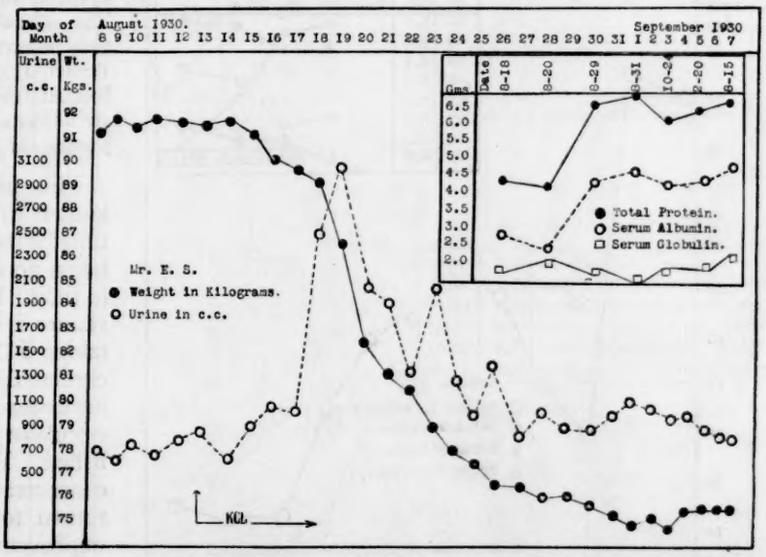

Chart 1 (case 1).—Diet started and 5 Gm. of potassium chloride started Aug. 13, 1930, and continued. The urinary output and the weight loss are graphed. The inset shows a rather reduced total serum protein, chiefly at the expense of the albumin fraction. A quite normal level of 6.5 per cent was found on the 29th after the edema had disappeared. These normal levels have obtained since that time. The last protein levels graphed were determined after one year.

This case seemed to be one of congestive heart failure which had finally failed to respond to management that was above criticism. The patient was apparently taking sufficient digitalis (0.3 Gm. daily) and he was on a low salt diet. He was taking ammonium chloride and finally he was forced to take salyrgan to hold the edema down. The response to the low sodium-high potassium management after a discontinuance of all other forms of therapy was striking. The events are best shown in chart 1. The inset shows a rather sharp concentration of the serum proteins coincident with the loss of the edema.

CASE 2.—M. R., a married woman, aged 27, developed acute nephritis in August, 1929, which subsided, leaving her with an albuminuria of 16 Gm. a day. Four months later (December, 1929) the serum proteins had became gradually depleted, so that she presented the classic symptoms and indications of the so-called nephrosis group. She felt well except that she was tired. Physical examination was negative except for marked pitting edema of the ankles and thighs, and a moderate ascites. The blood pressure ranged about 90 systolic and 55 diastolic. The urea nitrogen of the blood was characteristically low at 8 mg. per hundred cubic centimeters. There was no anemia, and the Wassermann test of the blood was negative. Renal function tests were entirely normal. The urine contained from 12 to 18 Gm. of albumin daily and the sediment was entirely negative except for numerous hyaline casts, a rare hyaline cast with granules and numerous doubly refractile lipoid bodies in the casts and free in the urine. With physical strain or exposure and in the presence of infections of the upper respiratory tract, a shower of red blood cells would be seen in the urine for a few days.

Management consisted of a low sodium-high potassium diet and the protein was increased to 150 Gm. This diet was tolerated very well and she seemed to feel much stronger, but the proteinuria and edema persisted. Eight grams of ammonium chloride daily reduced the edema materially but it failed to keep her free from edema. The same was true of ammonium nitrate in 10 Gm. daily feeding. The sharpest diuresis and the most prolonged effect was caused by giving 4 cc. of dilute hydrochloric acid in water with each meal. However, in all these periods of therapy with the acid-forming salts and the hydrochloric acid, there was an associated decrease in the carbon dioxide, an increase in the chlorides and proteins, and a shift of the p_H from 7.22 to as low as 7.14. When this shift occurred, water was released from the body but the patient complained of not feeling well. She complained of dull headaches, weakness and loss of appetite. No aggravation of the renal picture was noted. Finally, potassium chloride was given in daily amounts of 5 Gm. A sharp diuresis occurred with a loss of all the ascites and the edema. When the potassium salt was discontinued, the fluid gradually returned, and with the resumption of potassium chloride feeding the edema again disappeared (chart 2). The patient was maintained free from edema for weeks at a time by this method.

This case is of interest in that the patient presented a nephrotic syndrome which not only responded to the giving of acid and acid-forming salts but relieved her of edema by the neutral salt, potassium chloride. The diuretic influence of large amounts of alkali as given by Osman [6] in this type of case is of interest in that he gives potassium salts in large amounts. Again, an

6. Osman, A. A.: The Use of Alkalis in the Treatment of Bright's Disease, Guy's Hosp. Rep. **77**: 386 (July-Aug.) 1927.

apparent concentration of the serum proteins was associated with diuresis whether it was produced by ammonium chloride, hydrochloric acid or potassium chloride (inset, chart 2). The patient was much more willing to eat the low salt-high protein diet as soon as she was given potassium chloride, which served as a salt substitute as well as a diuretic. It was especially gratifying that the patient had no depressing symptoms while taking potassium chloride, and there were no measurable changes in the acid-base equilibrium, which was in contrast to the acidosis and symptoms produced by hydrochloric acid and the ammonium salts.

CASE 3.—L. L., a laborer, aged 36, began to suffer weakness, dyspnea and nocturia from five to eight times in July, 1931, and later edema of the ankles appeared. The

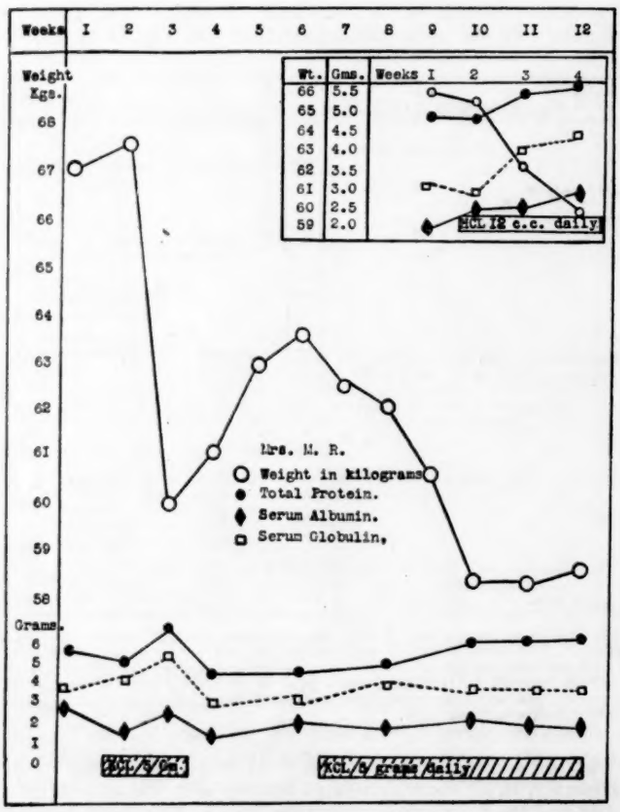

Chart 2 (case 2).—In addition to the diet, 5 Gm. of potassium chloride was given daily beginning with the second week. A great reduction in edema followed as shown by the fall in body weight. The potassium chloride was discontinued and a gradual increase in weight was noted, which again fell to normal when the potassium chloride feedings were resumed. The lines at the bottom of the chart show an increase in the level of the total serum proteins as the edema disappeared. Both serum albumin and serum globulin seemed somewhat increased. The inset shows a similar drop in weight and an increase in serum proteins in one patient associated with the giving of 4 cc. of dilute hydrochloric acid in water with each meal.

patient had had left hemiplegia in 1925, for which he had been observed in the neurologic clinic. Albumin and hyaline casts were found in the urine and the blood pressure was 225 systolic and 150 diastolic, so he was referred to the renal clinic. Physical examination showed only a slight residual of the old hemiplegia. The pupils reacted sharply to light and in accommodation. The fundi showed edema of the disk margins. The retinal vessels were small and tortuous, and there was nicking at the arteriovenous crossings. No hemorrhages were seen, but there were two small areas of exudation in the inferior temporal quadrant of the right eye. The throat and neck were normal and the chest was clear. The heart was moderately enlarged, the right border dulness being 3 cm. and the left border dulness 13 cm. The rate was regular at 90, and no murmurs were heard except for a slight systolic blow at the apex. The liver was about 5 cm. below the costal margin and it was very tender. There was marked edema of the legs and thighs. The blood pressure was now 196 systolic and 138 diastolic. There was no anemia; the Wassermann reaction was negative and the renal function tests were essentially negative. The day volume was 250 cc. with a specific gravity of 1.022, and the night volume was 1,440 cc. with a specific gravity of 1.012. The phenolsulphonphthalein excretion was reduced to 15 per cent, as might be expected in congestion of the liver. The urea nitrogen of the blood was only 14.5 mg. The electrocardiogram showed a rate of 88, a sinus mechanism, low P waves in all leads and a slurring of the RS complex in all leads. The T wave was inverted in lead 1 and diphasic in lead 2.

The patient was regarded as one having hypertensive vascular disease in which congestive heart failure had developed. He remained ambulatory and continued on the low salt diet of the preceding five years. He was given 5 Gm. of potassium chloride to sprinkle on his food; within a week he noted an increase in the urinary output and a decrease in the dyspnea, and his friends told him that his color was improved. The edema began to disappear rapidly and after two months' time he was quite dehydrated, having lost 30 pounds (13.6 Kg.) (chart 3). He was no longer cyanotic or dyspneic, and he boasted that he was walking two miles daily. He contracted an influenzal type of infection in January, 1932, followed by pneumonia and death.

This patient is of especial interest in that he was known to be hypertensive for six years during which time he had been on a low salt-low protein diet. He had taken no medication except potassium iodide from time to time. He finally developed a typical congestive heart failure from which he seemed to be entirely relieved by taking 5 Gm. of potassium chloride daily (chart 3). No cardiac therapy, bed rest or other circulatory supportive measures were instituted. It was striking to watch the circulatory picture improve as fluid balance was established. The table inserted in chart 3 indicates a rather concentrated state of the serum proteins. A slight return toward normal levels seems to follow clinical improvement.

COMMENT

To date, sixteen suitable cases have been studied in detail; four of them failed to respond. Clinical differences or laboratory observations have not been determined on which to predict which cases will respond and which cases will not. The cases that have been helped most have been those of congestive heart failure of the nonvalvular type. Two cases of chronic cardiac valvular disease with massive edema have shown good responses. One patient with high-grade mitral stenosis remained edema free for four months and he was up and around, when he suddenly died of pulmonary embolism. The second was a case of stenosis of the mitral and pulmonary valves. This patient was kept edema free for six months and then she went on to congestive failure similar to that present when she was first seen. One severe nephrotic syndrome has been maintained edema free only by the giving of 10 Gm. of potassium chloride daily. The standard care of numerous cases of congestive failure not included in this paper has apparently been greatly augmented by the general plan described.

The diet employed is general and it is felt that it is well adapted to the maintenance of a person with chronic disease. Great care must be given in prescribing diets that are deficient in any way if they are to be taken for a long period of time. This point is not

sufficiently emphasized in the clinical literature. Too many patients are placed on unbalanced or deficient diets which render them less able to maintain their body weight during the long strain of chronic disease. In many prescribed diets, it seems that the normal sodium to potassium ratio is greatly disturbed owing to the restricting of meats and the feeding of more fruit and vegetables. In the same fashion a great excess of alkaline ash is introduced into the body, which probably greatly facilitates fluid storage. Lashmet [7] has recently emphasized the addition of acid substances to the neutral diet. It will be noted that the diet outlined in table 2 leaves a definitely acid ash. That may explain why it has rarely been necessary to prescribe acid-forming salts.

The total amounts of specific mineral given in the diet agree quite closely with the averages given by Sherman [8] in 150 American dietaries. His figures are 1.94 Gm. of sodium and 3.39 Gm. of potassium a day, as compared to 1.07 and 3.33 Gm., respectively, given to our patients. The chief difference is the increased ratio of potassium to sodium, but often no diuretic influence was noted until further potassium was added as potassium chloride. The helpful diet of Keith, Smith and Whelan [9] differs from the plan used in these cases in that they attempt to keep all minerals low. Their first diet contained 3.74 Gm. of potassium, but this was reduced to 1.62 so that all ions were low in amount. The possible dangers of restricting important minerals such as sodium, calcium, phosphorus and potassium is not to be discussed here. The other chief difference is that the Keith low mineral diet leaves an excess alkaline ash.

Although no deleterious effects have been noted in this group of cases in which potassium chloride was given, the extreme toxicity of the potassium ion should be kept in mind. Several observers, Osman,[6] Addison [10] and others, have used large doses of potassium substances over long periods without trouble even in severe cases of vascular and renal disease. However, overdosage and, especially, poor excretion of potassium should be closely watched in that either may result in storage sufficient to produce severe symptoms and death.

In connection with the occasional marked diuretic response to potassium chloride feeding, the work of Harrison and Pilcher and their co-workers [11] should be borne in mind. These workers have shown that tissue potassium is often at a low level in cases of congestive heart failure. Whether or not a relation exists between their observations and the clinical studies presented here will be worked out in the future. The influence of the potassium ion alone or its action in the presence or absence of sodium and in special circumstances or combinations with the chlorides will be answered only by much careful study. Certainly more thought should be given to the minerals ingested by the patient chronically ill with edema.

SUMMARY

Experimental observations on the relation of sodium and potassium to body fluid balance have been applied to cases of cardiac and nephrotic edema. It has been found that twelve of sixteen patients lost their edema when given potassium chloride, provided they were placed on a full general diet with an acid ash excess in which a low ratio of sodium to potassium was maintained. Some cases responded dramatically and others less. No cause for the success or failure of this regimen has been found. No ill effects from the procedure have been noted in cases followed as long as a year and a half. No conclusions can be drawn from these observations, but it is hoped that this material might be of help to an occasional patient who has failed to respond to the usual measures.

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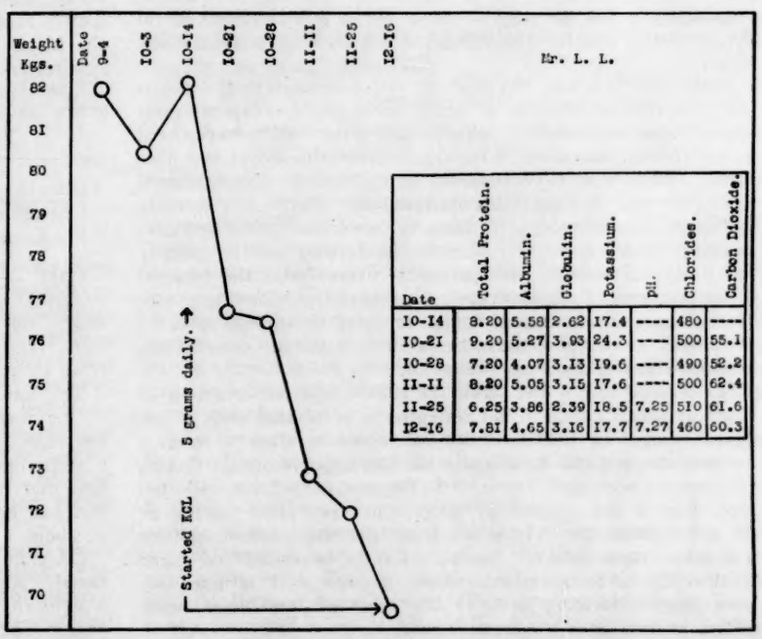

Date	Total Protein.	Albumin.	Globulin.	Potassium.	pH.	Chlorides.	Carbon Dioxide.
10-14	8.20	5.58	2.62	17.4	----	480	----
10-21	9.20	5.27	3.93	24.3	----	500	55.1
10-28	7.20	4.07	3.13	19.6	----	490	52.2
11-11	8.20	5.05	3.15	17.6	----	500	62.4
11-25	6.25	3.86	2.39	18.5	7.25	510	61.6
12-16	7.81	4.65	3.16	17.7	7.27	460	60.3

Chart 3 (case 3).—This graph shows the dramatic loss of body weight in congestive heart failure, associated with the giving of 5 Gm. of potassium chloride daily when the sodium intake was reduced. A complete symptomatic restoration of circulatory efficiency was effected without specific cardiac therapy. The small table inset shows a rather high percentage of serum proteins. The chlorides, carbon dioxide and *p*H remained essentially unchanged.

7. Lashmet, F. H.: The Treatment of Nephritic Edema by Acid, J. A. M. A. **87**: 918 (Sept. 26) 1931.
8. Sherman, H. C.: Chemistry of Food and Nutrition, ed. 3, New York, Macmillan Company, 1930, p. 271.
9. Keith, N. M.; Smith, Florence F., and Whelan, Mary: The Therapeutic Use of Diets Low in Water and in Mineral Content, Arch. Int. Med. **37**: 550 (April) 1926.
10. Addison, W. L. T.: The Use of Sodium Chloride, Potassium Chloride, Sodium Bromide and Potassium Bromide in Cases of Arterial Hypertension Which Were Amenable to Potassium Chloride, Canad. M. A. J. **18**: 281 (March) 1928.
11. Pilcher, Cobb; Callhoun, J. A.; Cullen, G. E., and Harrison, T. R.: Studies in Congestive Heart Failure: Potassium Content of Skeletal Muscle Obtained by Biopsy, J. Clin. Investigation **9**: 191 (Oct.) 1930.

Spermatogenesis in Advanced Age.—Recently I appeared as an expert witness in the law courts in a suit which turned on whether a man of 83 could be the father of a child. We won our case, not only because the collateral evidence was strong, but because I could quote many instances of spermatogenesis in the testes of men of 80 and even of 90. Metchnikoff actually cites the case of a man of 103 in whose testes spermatozoa were found. And if examples are required of the retention of sexual passion we have only to think of Goethe, who at the age of 74 fell so desperately in love with a girl of 17 that when his suit went badly he was prostrated with grief and no longer desired to live. Indeed, it was this episode in his life, and a previous one in which he had been more successful, that suggested to him the theme of Faust.—Walker, Kenneth: The Accidents of the Male Climacteric, *Brit. M. J.* **1**: 50 (Jan. 9) 1932.

Clinical Notes, Suggestions and New Instruments

SPONTANEOUS HYPOGLYCEMIC SHOCK IN CHILDREN: REPORT OF FOUR CASES

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During the past three years, four children have been observed with syncope associated with an idiopathic hypoglycemia. Three patients were admitted with complete loss of consciousness, one with semiconsciousness, and all appeared to be extremely sick. The blood sugar values ranged from 27 mg. to 73 mg. per hundred cubic centimeters. Two of the patients recovered immediately after receiving dextrose intravenously, the third after dextrose by mouth and rectum, the fourth recovered spontaneously. None of these patients had convulsions.

In view of the recent reports in the literature of patients with convulsions due to hypoglycemia, it seems desirable to report this group of cases presenting unconsciousness due to hypoglycemia but not convulsions. There is little reference in the pediatric literature to hypoglycemia as a cause of syncope alone.

Seale Harris [1] was the first to call attention to the possibility of hyperinsulinism in adults as a cause of spontaneous hypoglycemic symptoms. Subsequently several authors reported hypoglycemia associated with hypertrophic disease of the pancreas. Allan [2] in 1929 reported hypoglycemia not associated with any organic disease of the pancreas. Carr [3] has recently discussed the neurologic syndromes associated with hypoglycemia in adults and referred to his interesting case of epilepsy due to hypoglycemia. This patient recovered after the removal of an adenoma of the pancreas. Carr lists the following symptoms of spontaneous hypoglycemia, reported by various authors: weakness, anxiety, restlessness, stupor, diplopia, convulsions, hemiparesis, and automatic behavior.

Josephs in 1926 [4] and again in 1929 [5] reported a group of cases in which children had convulsions associated with a low blood sugar. In 1929 Griffith [6] attempted to show a relation between the convulsions of early life and hypoglycemia. Others (Talbot,[7] Shaw and Moriarty,[8] Weymuller [9]) have reported low blood sugar values in epileptic patients on a fasting or on a ketogenic diet. It is assumed that the mechanism here was a low sugar intake. No cause for the lowered blood sugar level could be found in our cases. In one case fatigue may have been a factor. Levin [10] has reported low blood sugar values in men after a marathon race.

REPORT OF CASES

CASE 1.—R. B., a white American boy, aged 3½ years, was admitted, Jan. 21, 1931, in a state of unconsciousness of five hours' duration. The blood sugar was 27 mg. per hundred cubic centimeters. He recovered while receiving an intravenous injection of dextrose.

The family history and the past history were negative.

The child had failed to eat his supper eighteen hours before admission, but otherwise he had acted normally until the following morning, when his mother found him lying in bed in a deep stupor from which he could not be aroused. He was brought to the hospital several hours later, still in a comatose condition.

The boy was unconscious. His eyes were slowly oscillating from side to side with alternating internal strabismus, first on the right and then on the left. His neck was not stiff. He had bilateral Kernig and Babinski signs. The throat was injected. The rest of the physical examination was negative. The pulse was 96; respiratory rate, 24; temperature, 97 F.; blood pressure, 88 systolic and 64 diastolic. Examination of the urine showed 2 plus acetone, no sugar, no albumin and nothing abnormal microscopically. The blood sugar was 27 mg. per hundred cubic centimeters of blood with a carbon dioxide combining power of 45 volumes per cent; plasma protein, 4.7; calcium, 8.7; phosphorus, 4.2. The spinal fluid was normal (sugar 12 mg., protein 22 mg.).

While still in the admitting room, after a sample of blood had been taken for examination, the child was given an infusion of 50 cc. of 50 per cent dextrose solution. When about 25 cc. of this solution had been given, the patient was wide awake and crying for his mother. The blood pressure immediately rose to 124 systolic and 60 diastolic. The following day the blood sugar concentration was 86 mg. per hundred cubic centimeters.

The sugar tolerance test is recorded in table 1.

TABLE 1.—*Sugar Tolerance Test in Case 1*

Fasting Blood Sugar	30 Minutes	1 Hour	2 Hours
90 mg.	121 mg.	138 mg.	105 mg.

CASE 2.—J. H., a white American boy, aged 8 years, was admitted July 2, 1930, because of semiconsciousness of four hours' duration. His blood sugar was 53 mg. per hundred cubic centimeters. He recovered slowly after receiving dextrose by mouth and by rectum.

The family history and the past history were negative.

One hour before admission the patient's mother had been hurriedly summoned to the street, where she found the boy in a stuporous condition in the arms of a policeman. She was told that the boy had been frightened by a dog. The patient had had no lunch on the day of admission. He was admitted at about 4 p. m.

On examination he was found to be semiconscious and irrational. Respirations were alternatingly rapid and slow. This irregularity in breathing continued for half an hour after admission. The rest of the physical examination was negative. Neurologic examination, except for semiconsciousness, was negative. The urine showed 4 plus acetone. The spinal fluid was normal. White blood cells, 3,700; polymorphonuclears, 89 per cent; lymphocytes, 11 per cent; blood sugar, 53 mg. per hundred cubic centimeters of blood.

He was given dextrose by mouth and by rectum, and he fully recovered in about six hours after admission.

The results of sugar tolerance tests on two occasions are shown in table 2.

TABLE 2.—*Sugar Tolerance Tests in Case 2*

Date	Fasting Blood Sugar	30 Minutes	1 Hour	2½ Hours
7/3/30.....	56 mg.	93 mg.	90 mg.	93 mg.
7/8/30.....	87 mg.	122 mg.	112 mg.	63 mg.

The case showed a low fasting blood sugar preceding the first test but a normal level before a second test five days later.

It is interesting to note that this patient had a slow pulse, whereas a rapid pulse is usually found in patients with hypoglycemic shock.

CASE 3.—This case was observed in the examining room. L. R., an Italian girl, aged 11 years, weighing 82 pounds (37 Kg.), had been seen on several occasions because of left facial hemiatrophy, right tibial atrophy and leukoderma following an attack of measles at the age of 2 years.

At the completion of prolonged roentgenologic, physical and anthropometric examinations a sample of blood was drawn

From the Department of Pediatrics, New York University, and the Children's Medical Service, Bellevue Hospital.

1. Harris, Seale: Hyperinsulinism and Dysinsulinism, J. A. M. A. **83**: 729-733 (Sept. 6) 1924.
2. Allan, F. N.: Hyperinsulinism, Arch. Int. Med. **44**: 65-70 (July) 1929.
3. Carr, A. D.; Parker, Robert; Grove, Edward; Fisher, A. O., and Larimore, J. W.: Hyperinsulinism from B-cell Adenoma of the Pancreas, J. A. M. A. **96**: 1363-1367 (April 25) 1931. Carr, A. D.: Neurologic Syndromes Associated with Hypoglycemia, ibid. **97**: 1850-1852 (Dec. 19) 1931.
4. Josephs, Hugh: Fasting as a Cause of Convulsions, Am. J. Dis. Child. **31**: 169 (Feb.) 1926; Recurrent Vomiting, ibid. **31**: 657 (May) 1926.
5. Josephs, Hugh: Spontaneous Hypoglycemia in Childhood, Am. J. Dis. Child. **38**: 746 (Oct.) 1929.
6. Griffith, J. P. C.: Hypoglycemia in the Convulsions of Early Life, J. A. M. A. **93**: 1526 (Nov. 16) 1929.
7. Talbot, F. B.; Shaw, E. B., and Moriarty, Margaret E.: Hypoglycemia and Acidosis, J. A. M. A. **83**: 91 (July 12) 1924.
8. Shaw, E. B., and Moriarty, Margaret, E.: Hypoglycemia and Acidosis in Fasting Children with Idiopathic Epilepsy, Am. J. Dis. Child. **28**: 553 (Nov.) 1924.
9. Weymuller, C. A., and Schloss, O. M.: Nondiabetic Ketosis in Children, Am. J. Dis. Child. **34**: 549 (Oct.) 1927.
10. Levin, S. A.; Gordon, Burgess; and Derick, C. L.: Some Changes in the Chemical Constituents of the Blood Following a Marathon Race, J. A. M. A. **82**: 1778 (May 31) 1924.

from an arm vein. A few minutes later the child became covered with perspiration and fainted. The pulse was thin and rapid; the skin was cold. The faint lasted about five minutes. The child recovered spontaneously and returned home. There were no previous or subsequent attacks. Examination of blood taken showed the following: blood sugar, 35 mg. per hundred cubic centimeters; calcium, 12 mg.; phosphorus, 5.1; serum protein, 11.2.

CASE 4.—J. T., a girl, aged 26 months, was seen in consultation by Dr. Giuseppe Previtali and Dr. Charles Hendee Smith, who kindly permitted us to report the case.

The family history and the past history were essentially negative.

The mother found the baby unconscious, lying in bed at about 8 a. m. The patient was taken to a hospital, where an intravenous injection of dextrose was given soon after admission and immediately after which she regained consciousness. On the next day blood sugar was 73 mg. per hundred cubic centimeters of blood. The urine showed a heavy trace of acetone and a faint trace of sugar. Unfortunately, no blood sugar examination was done before the intravenous administration of dextrose. The blood sugar the next day showed a low normal level.

SUMMARY

Four patients with attacks of unconsciousness associated with an idiopathic hypoglycemia recovered rapidly following administration of dextrose.

HEMATOMA OF RECTUS ABDOMINIS MUSCLE

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This case is reported because of its unusual character. Rupture of a blood vessel in the abdominal wall occurred, causing symptoms suggestive of an intra-abdominal pathologic condition.

Mrs. M. R., aged 54, was admitted to the W. W. Backus Hospital, Aug. 21, 1931, complaining of pain in the lower part of the abdomen. She had had a spasm of severe coughing, August 16, which caused a sudden sharp pain in the left lower quadrant of the abdomen. A large globular swelling formed shortly afterward at the site of pain. She remained in bed for four days, but when she arose pain recurred with renewed severity which caused her to seek advice. She was sent to the hospital.

The patient had had a chronic cough for fourteen years, which was painful at times and produced white expectoration. She was married at 18, had twelve children, and passed the menopause at 48. She had had a "fallen womb," which condition was gradually increasing, giving her no great discomfort, however.

The patient was well developed and well nourished. The heart and lungs were normal. Blood pressure was 154 systolic and 90 diastolic. A hard, ovoid mass, the size of a small grapefruit, was felt below and to the left of the midline. Ecchymotic areas about the pubis and perineum, and a marked procidentia with complete eversion of the vaginal wall were present. The abdominal mass did not change its position when the patient turned from side to side but appeared to be adherent to the left side of the abdominal wall.

The patient's temperature, August 21, was 100 F., the pulse rate 110, and respiration 24. Blood count showed 4,400,000 erythrocytes, 70 per cent hemoglobin and 10,400 leukocytes, with 80 per cent polymorphonuclear cells, 12 per cent lymphocytes, 5 per cent eosinophils and 3 per cent mononuclear cells. The urine showed occasional hyaline casts on one examination but none at another examination. Roentgen examination of the chest was negative except for peribronchial thickening probably due to chronic bronchitis.

The patient came to operation, August 26. Under spinal anesthesia a lower midline incision was made and bluish discoloration was noted before the sheath of the rectus muscle was incised. When the sheath was opened a large black clot, which had already begun to undergo hemolysis, presented itself to the left of the midline. The clot displaced the fibers of the rectus muscles. Black clots weighing about 500 Gm. were removed and the cavity remaining was sponged out. Several large veins were seen, which were clamped and tied. The posterior rectus sheath and the peritoneum were then incised and Olshausen suspension of the uterus was performed. The abdomen was closed in layers; a rubber drain was left in the cavity from which the blood clot had been removed. The drain was removed on the third day after operation and a dark serous discharge continued for two days later. The patient made an uneventful recovery and was discharged from the hospital seventeen days after the operation.

COMMENT

This case illustrates an uncommon condition wherein a hematoma of the abdominal wall occurred not due to direct trauma. It is conceivable that a large vein was ruptured in the violent fit of coughing that occurred. Physical signs noted at the first examination pointed to the condition found at operation.

326 Washington Street.

MASTOIDITIS WITHOUT APPARENT OTITIS MEDIA IN A PATIENT WITH DIABETES

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Mastoiditis without apparent disease of the middle ear is unusual and its occurrence in a diabetic patient makes the following case doubly interesting:

REPORT OF CASE

F. S., a white man, aged 27, had had diabetes for ten years. He had taken insulin since 1923.

There was no history of previous ear, nose or throat disease. One month before admission the patient had apparently contracted a slight cold. The next day the left ear felt a little stuffy; later he noted autophony. There was neither earache nor aural discharge. A week later he became dizzy and weak and experienced considerable pain in the left temporal region. A swelling appeared in the left temporal and preauricular regions. This was associated with slight trismus. Two weeks before admission the pain caused him to consult an otolaryngologist, who believed that the condition was a parotitis secondary to an external otitis.

The temporal headache became continuous and more severe; the swelling and trismus increased and the temperature was elevated. A roentgenogram of the mastoid process showed only a slight cloudiness of the cells on the left, but there was no change in the tympanic membrane and no tenderness over the mastoid process, and for this reason the physician hesitated to advise surgery. Because of this infection the symptoms of diabetes became more marked. For a week before admission the patient had vomited all his food and had stopped taking insulin because he could not eat. He was admitted to the diabetic service of Dr. W. D. Sansum at the Santa Barbara Cottage Hospital, Sept. 9, 1931, at 12:30 a. m. in a semicomatose condition. The temperature was 101.2 F., pulse 100, and respiration rate 30 per minute. The breath smelled strongly of acetone; urinalysis showed sugar ++++, acetone ++++, and diacetic acid ++++. Blood sugar was 500 mg. per hundred cubic centimeters. There was an extensive, moderately tender swelling involving the left preauricular, zygomatic and temporal regions of the head. There was no swelling over the mastoid process; only slight tenderness could be elicited by firm pressure in this region. There was no drooping of the posterosuperior wall of the external canal. The tympanic membrane, except for a loss of luster, was normal in appearance. Tests of the hearing showed moderate conduction deafness on the left. Repetition of the roentgen examination of the mastoid again showed a well developed cellular structure, the cells being of the small type. There was considerable increase in density, and trabecular detail was poorly defined, but there was no extensive solution of cell wall integrity. The condition was interpreted as early second degree mastoiditis. The blood picture was as follows: hemoglobin, 75 per cent; red blood cells, 4,830,000; white blood cells, 13,100. Differential count: small lymphocytes, 6 per cent; large lymphocytes, 12 per cent; polymorphonuclears, 82 per cent.

The patient was prepared by appropriate insulin and dietetic management for operation.

Mastoidectomy was performed, September 10, under ether anesthesia. When the cortex was exposed, a small perforation

From the Sansum Clinic.

was noted midway between the tip and the spine of Henle. A second cortical perforation was present at the root of the zygomatic process. Approximately half of the cells over a large area were filled with pus, particularly those in the region of the antrum and zygoma. There was beginning destruction of the bony trabeculae. The antrum contained a considerable amount of granulation tissue. Because the inner plate over the sinus and the middle fossa was apparently intact, the dura was not exposed. A huge subperiosteal abscess in the temporal fossa was drained. A rubber drain was introduced into the upper portion of the wound extending to the subperiosteal abscess, and the mastoid wound was packed loosely with petrolatum gauze. The wound was closed with silkworm catgut and dermal. Myringotomy done at the completion of the operation revealed no pus. The drum was healed in a few days without discharging. Culture of the pus obtained at operation revealed Streptococcus mucosus.

September 31, the temporal abscess had to be reopened and drained because the rubber drain had become loosened prematurely. Otherwise, convalescence was uneventful and the mastoid wound healed cleanly.

The patient was discharged, October 14. The urine was sugar free on a maintenance diet with 33 units of insulin daily. The blood sugar fasting was 148 mg. per hundred cubic centimeters. Trismus was almost entirely cleared up and hearing tests showed normal response with both the C and C_4 forks.

COMMENT

Infection of the mastoid process, in which a zygomatic abscess is the principal finding, presents a problem in diagnosis, the difficulty of which is increased in the absence of any apparent disease of the middle ear. That the preceding otitis media was probably slight was shown by the facts that the drum appeared practically normal, that myringotomy disclosed no pus, and that the drum healed early and the function of hearing returned promptly. The infection in the mastoid antrum and cells evidently became walled off from the tympanum by obstruction of the aditus by the firm granulation in the antrum. The early appearance of the cortical perforation and subperiosteal abscess is characteristic of this type of infection and demonstrates the insidious, destructive action of Streptococcus mucosus. The concurrence of diabetes increased the hazard and may have hastened the formation of the subperiosteal abscess.

A review of the literature fails to reveal any report of a case of zygomatic mastoiditis among diabetic patients.

317 West Pueblo Street.

PIGMENTATION OF THE FACE AND NECK DUE TO FRECKLE CREAM

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Goeckermann [1] reported two cases in 1922 of pigmentation of the face and neck which he proved by deductive reasoning to be due to face cream. As to whether the discoloration was a pigment or a metallic deposit, no definite answer was given at that time. In order to show the frequency of such cases, and also to bring out more facts regarding the etiology, the same author [2] reported thirteen additional cases in 1925. At this time he demonstrated by microscopic section the distribution of the pigment in all layers of the skin and subcutis, thus indicating to him that a gradual absorption of the metal took place; also, the pigment in the skin as removed by biopsy was destained by Zenker's solution, which differentiated mercurial deposits from other forms of pigmentation.

Hollander and Baer [3] in 1929 reported a case in which they proved conclusively by a very sensitive electroqualitative chemical method that the discoloration was a metallic deposit. These are the only authors and cases in the literature. I am presenting another such case.

Mrs. G. B., aged 47, a Roumanian, without children, was seen at the clinic, July 22, 1931, for conditions other than the discoloration of the face and neck. However, on seeing the patient come in the door, one was struck by the dark dirty color of the face and neck. On questioning, she stated that she was using "Othine Double Strength Ointment" for the removal of freckles. She had been using the cream for the past year and a half, but no notice of the discoloration was made until a year before admission. The neighbors were the first to notice the change in the color of the face. She then told me that her husband often accused her of having a dirty face and neck. The patient, nevertheless, had kept on using the cream. She stated that she was in the habit of massaging the face and neck with the cream and allowing it to stay on over night. The face and neck were continually becoming more discolored.

The past history is essentially negative. No medicine had been taken or other substances used that might explain the discoloration.

The examination revealed, apart from the facial appearance, two deep rectal fissures and four moles, one of which was situated on the left anterior surface of the neck and which was subsequently removed, another on the forehead over the left orbital ridge, and the other two in the hair line on the posterior surface of the neck. The discoloration was seen to begin on the neck and was rather sharply demarcated. The pigmentation extended on up to include the face and forehead. The posterior surface of the neck was also involved. The face and neck were of a slaty gray with a bluish cast. The color was deeper in the folds of the neck. Although the patient was of Roumanian descent and naturally dark, at a distance the face and neck did look dirty.

Laboratory examinations showed a negative Wassermann reaction, a normal urine analysis, and a very mild secondary anemia (80 per cent).

F. E. Voist, chemist of the Detroit Board of Health, reported that the sample of Othine submitted contained ammoniated mercury and bismuth subnitrate in a cold cream base.

The mole on the anterior left surface of the neck was removed by excision under a local anesthetic. A small piece of skin, 1 by 4 cm., was removed in conjunction with the mole. This was examined both chemically and pathologically. Chemically silver nitrate was used to precipitate the mercury if present. This analysis was negative, probably because the test was not fine enough. The pathologist, Dr. Osborne A. Brines, reported finding many pigment granules in the corium subcutaneous zone of the skin. Because of the position of these pigment granules, one can readily understand how ineffectual treatment would be.

These cases have been confused with many types of diseases, such as, Addison's disease, argyria, exophthalmic goiter, and cardiac and other chronic conditions. The frequency of such cases would be greater if they would not be confused with the conditions just mentioned.

Treatment is of slight value, as has been brought out, because of the situation of the granules deep down in the subcutaneous tissues. Some have advocated the use of a 0.5 to 1 per cent solution of acetic acid, a 0.5 to 1 per cent aqueous solution of potassium cyanide, or weak solutions of iodine rubbed on the skin, followed by removal with alcohol. Some have proposed the use of potassium iodide and sodium thiosulphate internally. Probably the withdrawal of face cream for about six months will be sufficient to show a difference in color, because of the constant absorption that is taking place. Several of the foregoing have been tried with a very gradual clearing up of the skin.

Why one person should become discolored, and another not, is probably based on a difference of susceptibility. I have in mind one person who has been using a triple strength of the same cream for several years, but without any discoloration. This individual, however, does not use it constantly nor does she massage it in and allow it to remain for several hours.

The following points need emphasis:

1. Cases of this type should not be confused with Addison's disease, cardiac disease or other chronic diseases.
2. No treatment is probably any more effectual than allowing the pigment to become absorbed by itself.
3. Susceptibility probably explains why some individuals become discolored and others do not.

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1. Goeckermann, W. H.: A Peculiar Discoloration of the Skin, J. A. M. A. **79**: 605 (Aug. 19) 1922.
2. Goeckermann, W. H.: A Peculiar Discoloration of the Skin, J. A. M. A. **84**: 506 (Feb. 14) 1925.
3. Hollander, Lester; and Baer, H. L.: Discoloration of the Skin Due to Mercury, Arch. Dermat. & Syph. **20**: 27 (July) 1929.

Special Article

REVIEW OF RECENT STUDIES ON THE ANTINEURITIC VITAMIN

ITS CHEMICAL AND PHYSIOLOGIC PROPERTIES, AND THE EFFECTS OF ITS DEPRIVATION ON THE ANIMAL BODY

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[EDITORIAL NOTE.—The following article is one of a series on the Present Status of the Knowledge of Vitamins, prepared under the auspices of a committee composed of Morris Fishbein, chairman, Lafayette B. Mendel and Julius Hess, representing a joint committee of the Council on Pharmacy and Chemistry and the Committee on Foods. These articles have been considered by the Council on Pharmacy and Chemistry and by the Committee on Foods and are published under their auspices. The opinions expressed are those of the authors and not necessarily the opinions of the Council on Pharmacy and Chemistry or the Committee on Foods.]

For more than a decade the antineuritic principle has been designated as vitamin B, but developments of the past two years have imparted to the latter term an ambiguity that has led to much perplexity. Not only is the chemical nature of vitamin B still unknown, but just what should be included under the term has become largely a matter of individual preference or persuasion. It is not without interest to trace the varied changes which the concept of this vitamin has undergone. What was originally the antineuritic substance of Eijkman and Funk,[1] which was a specific for the cure of polyneuritis in pigeons, and what was the independently discovered water-soluble B of McCollum,[2] which was demonstrated to be necessary for growth in the rat, became merged into the substance vitamin B,[3] following the demonstration that those natural foods curing polyneuritis likewise promoted growth in animals.[4] Thus vitamin B was regarded as one substance, capable of both preventing polyneuritis and furthering growth. But the simplicity of the view was dispelled by convincing evidence that this vitamin actually comprised at least two substances, differentiated on the basis of sensitivity to heat.[5] After a period of utmost confusion in terminology, agreement was finally reached in this country[6] by designating the antineuritic, thermolabile component as vitamin B, and the antidermatitis,[7] thermostable substance as vitamin G. The British, preferring the subscript system, retained the names B_1 and B_2 for the respective fractions. As the result of this insight into the multiple nature of water-soluble B, there was no longer a water-soluble B growth factor per se; both components, B and G, were deemed necessary for increase of weight in rats.

At once it was appreciated that much of the vast accumulation of facts concerning the distribution, properties and physiologic behavior of vitamin B, recorded when it was held to be a unit substance, would have to be exhumed and reexamined in the light of its dual nature. For the production of uncomplicated vitamin B deficiency, the method now usually involved inclusion of autoclaved yeast as a source of vitamin G in the basal diet. But the provision of vitamin B alone was not so readily achieved because of its instability to heat and because so relatively few foodstuffs contained it to the exclusion of vitamin G. However, by suitable selection of such grains as wheat and corn, which were found to be relatively richer in B than in G, and by taking advantage of the greater solubility of B in strong alcohol, extracts were prepared containing predominantly the B component. With the perfection of this technic, investigations on vitamin B were renewed with an intensity that even yet has only slightly abated. But new complications appeared with the use of moderately refined concentrates of vitamin B, because these products, while curing polyneuritis, very often would not support growth, even when supplemented with a source of vitamin G. So, almost before the novelty of the dual nature of the B complex had worn away, studies with highly purified fractions indicated the possible existence of seven components in the complex, some of which, however, may conceivably be shown later to be identical.

At present there is no adequate nomenclature for these various components, although British practice requires the use of a numerical subscript following the letter B. The situation is made doubly intricate because there is no simple method of differentiating the various factors; it is difficult to dissociate them even by chemical means. Manifestly, in view of the present knowledge concerning the multiplicity of the B complex, an exposition on vitamin B must contain an arbitrary assertion as to just which one of the seven factors is meant. In the present paper we shall regard vitamin B as the thermolabile, antineuritic substance, necessary for growth in both the pigeon and the rat. But such restriction of the term at once impairs the value of the data recorded on the chemical and physiologic properties of the antineuritic vitamin, together with the pathologic changes ensuing from its deprivation. To the disturbing effect of multiplicity on the vitamin B literature may be added the complications arising from inanition, discrepant species requirements, and the divergent criteria of animal tests.

When vitamin B was originally regarded as a growth entity, information regarding its physiologic rôle and the pathologic processes arising in its absence was gathered by the simple expedient of omitting sources of it from a diet adequate in all other respects. Addition of natural foods to such a diet constituted the accepted method of assay for the distribution of the vitamin. By this procedure a tremendous literature on this dietary essential was accumulated. With the acceptance that the vitamin really represented two substances, differentiated by heat, some of the properties previously ascribed to the antineuritic vitamin were shown to be due to the adventitious presence of the second component. Similarly, the multiplicity of vitamin B created erroneous ideas regarding the distribution of the antineuritic component. It is quite clear that when cure of polyneuritis in the pigeon or growth in the rat was obtained, vitamin B was present in the test substance. In the case of negative experiments in the past, however, it was possible that the vitamin B content of foods may have been underestimated because

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1. Eijkman, Christiaan: Virchows Arch. f. path. Anat. **148**: 523, 1897. Funk, Casimir: J. Physiol. **43**:395, 1911.
2. McCollum, E. V., and Davis, Marguerite: J. Biol. Chem. **23**: 181, 1915.
3. Drummond, J. C.: Biochem. J. **14**: 660, 1920.
4. McCollum, E. V., and Kennedy, Cornelia: J. Biol. Chem. **24**: 491 (April) 1916.
5. Smith, M. I., and Hendrick, E. G.: Pub. Health Rep. **41**: 201 (Feb. 5) 1926.
6. Committee on Vitamin B Nomenclature, American Society Biological Chemists: Science **69**: 276 (March 8) 1929.
7. Goldberger, Joseph; Wheeler, G. A.; Lillie, R. D., and Rogers, L. M.: Pub. Health Rep. **41**: 297 (Feb. 19) 1926.

vitamin G was the limiting factor for growth. When the basal diet for the test of the B growth complex was so supplemented by a source of vitamin G that only the antineuritic B factor was missing, reappraisal of foods for their B values brought some changes. At least foods were now evaluated for their relative richness in B or G.

All such revisory work on the distribution of vitamin B and the physiologic and anatomic consequences of its absence, which have been undertaken with a basal diet supplemented by a source of G, has been assumed to deal with an "uncomplicated vitamin B deficiency." If the claims for the existence of seven factors in the B complex are seriously considered, it is readily seen that in most studies the technic has not been sufficiently refined to permit the production of an "uncomplicated B deficiency." Particularly is this situation encountered in those instances in which yeast provided the G factor in growth experiments; the absence of other thermolabile factors than B may have easily complicated the results. Sufficient evidence has been adduced to indicate that the physiologic and pathologic effects ascribed to the antineuritic vitamin, at least in growth experiments on rats, are in reality the resultant of a multiple deficiency and are subject to revision as the nature of the B complex is amplified. We might be tempted to brand as premature many of the studies on vitamin B in which the effects of a multiple B deficiency have not been eliminated, if it were not for the fact that their potential clinical value outweighs all the fine and academic distinctions that have been emphasized. Nevertheless, in all fairness the exact status of knowledge of vitamin B should be recognized; for the unequivocal production of an uncomplicated vitamin B deficiency cannot in most instances be said to have been established. Obviously, satisfactory studies on the biologic rôle of vitamin B in the strictest sense must await the time when the number of factors in the B complex is definitely settled and when the preparation of concentrates will enable the production of a specific deficiency for each component.

Inanition is the second complication calling in question how much of the recorded morbid anatomy and physiology is rightly ascribable to a deficiency of the antineuritic vitamin. That the presence of vitamin B furnishes a stimulus to the appetite has been convincingly demonstrated by Karr and Cowgill, and by the same token inanition enters as a disturbing element in instances of vitamin B deprivation.[8] It has long been recognized that inanition, whether by direct or by indirect starvation, leads to definite alteration in the physiology of the animal and to a distinct pathologic picture.[9] Just what part of the morbid processes in vitamin B deficiency is due to inanition and what part is due to lack of the vitamin per se has until recently received scant attention. Hence, an imposing group of functional disturbances and anatomic changes have been accepted for years as the effects of B avitaminosis, when in reality they are the manifestations of inanition. It is to the credit of Kon and Drummond[10] that they circumvented the technical difficulties of separating the effects of inanition from B deficiency by feeding an adequate diet to control animals, but at a caloric level equivalent to that consumed by animals on the B deficient diet. In considering the work of the past, they make the sweeping comment that all the pathologic changes observed in beriberi pigeons are directly attributable to inanition.

Another condition that has cast doubt on the interpretation of vitamin B observations has been the use of two species in the animal tests. By far the larger part of vitamin B experimentation has been performed on the pigeon and the rat. Unfortunately the B requirements of these two species for increased weight appear to be widely different. Of the seven components at present advanced as constituents of the water-soluble B complex, the pigeon needs three,[11] and the rat requires five[12] for optimum nutrition. Thus far only one component, the antineuritic vitamin B, has been shown to be definitely needed in common by the two species;[13] on the other hand, there is some evidence that certain components are required by one species but not by the other. The entire question of the nutritive needs of the pigeon and the rat for growth is in a transitional state, and judgment concerning it may well be reserved. It is not impossible that the estimated number of B components may be reduced by the demonstration that certain of them are identical. However, the available evidence that the pigeon and the rat require different components of the B complex for maximum weight is of such convincing character that it cannot be dismissed. Certainly there is abundant opportunity for error in attempting to correlate the pathologic and the physiologic manifestations of the rat and the pigeon on a defective diet: unless the ration of each species is made adequate with respect to all factors required by it, with the exception of the antineuritic component, the observations may not be comparable. The same conditions must be met in assaying foods for their content of the antineuritic vitamin, if the weight test is to be employed. An alternative procedure in assay experiments, strongly advocated by Peters and Smith, is the alleviation of symptomatology specific for polyneuritis in the pigeon[14] or the rat;[15] i. e., the so-called curative test.

The fourth source of confusion with regard to knowledge of vitamin B, particularly of its distribution and properties, has been the lack of uniform criteria in tests. Even with one species, some investigators have used freedom from polyneuritis as the basis of a positive test, while others have chosen to judge success by increase in weight. In general, the B requirements are much more extensive for growth than for treatment of polyneuritis. In the rat, for instance, it has been mentioned that five components of the B complex are thought to be necessary for growth, while only one is needed for prevention or cure of polyneuritis. It is obvious that substances may exhibit antineuritic activity without promoting growth in an animal, because of their deficiency in the additional components necessary for increase of body weight.

8. Karr, W. G.: J. Biol. Chem. **44**: 255, 1920. Cowgill, G. R.: Am. J. Physiol. **57**: 420 (Oct.) 1921.
9. Jackson, C. M.: The Effects of Inanition and Malnutrition on Growth and Structure, Philadelphia, P. Blakiston's Son & Co., 1925.
10. Kon, S. K., and Drummond, J. C.: Biochem. J. **21**: 632, 1927.
11. Jansen, B. C. P., and Donath, W. F.: Mededeel. v. d. dienst. d. volksgezondh. in Nederl.-Indie., 1927, pt. I, p. 186. Williams, R. R., and Waterman, R. E.: J. Biol. Chem. **78**: 311 (July) 1928. Kinnersley, H. W., and Peters, R. A.: Biochem. J. **22**: 419, 1928. Guha, B. C., and Drummond, J. C.: Ibid. **23**: 880, 1929. Carter, C. W.; Kinnersley, H. W., and Peters, R. A.: Ibid. **24**: 1832, 1844, 1930.
12. Smith and Hendrick (footnote 5). Reader, Vera: Biochem. J. **23**: 689, 1929; **24**: 77, 1827, 1930. Hunt, C. H.: J. Biol. Chem. **78**: 83 (June) 1928; **79**: 723 (Oct.) 1928. Hunt, C. H., and Wilder, Willard: Ibid. **90**: 279 (Jan.) 1931. Williams, G. Z., and Lewis, R. C.: Ibid. **89**: 275 (Nov.) 1930. Chick, Harriette; and Roscoe, Margaret H.: Biochem. J. **23**: 498, 1929. Roscoe, Margaret H.: Ibid. **24**: 1754, 1930. Chick, Harriette; and Roscoe, Margaret H.: Ibid. **24**: 105, 1930. Chick, Harriette; and Copping, Alice M.: Ibid. **24**: 932, 1764, 1930.
13. Kinnersley, H. W.; Peters, R. A., and Reader, Vera: Biochem. J. **24**: 1820, 1930.
14. Kinnersley, H. W.; Peters, R. A., and Reader, Vera: Biochem. J. **22**: 276, 1928; footnote 13.
15. Smith, M. I.: Pub. Health Rep. **45**: 116 (Jan. 17) 1930. Sebrell, W. H., and Elvove, E.: Ibid. **46**: 917 (April 17) 1931.

Most of the studies on the function and properties of vitamin B and the effect of its deprivation on the body have been open to criticism on one if not all of the foregoing points. Therefore, as the facts concerning vitamin B are presented in succeeding paragraphs, it should be borne in mind that the data in many instances lack the touch of finality, and they should be accepted only with reservation.

TESTS

For determination of the presence of an antineuritic vitamin in natural foods, extracts and chemically treated fractions, eight possible procedures are open, depending on the animal used, the criteria of the test, and the preventive or curative technic. These procedures can be most conveniently condensed into diagrammatic form:

Prophylactic	Polyneuritis	Rat
	Loss of Weight	Pigeon
Curative or Restorative		

The details of the various methods have been previously presented,[16] and the only essential modification has been the inclusion of a source of thermostable G in the basal diet to render it more specific for antineuritic B. Obviously, in the weight test the basal diet for both the rat and the pigeon will undergo further supplementing in the future for the sake of greater specificity.

PHYSIOLOGY OF VITAMIN B

In the main, the normal physiology of the antineuritic factor has been learned by study of impaired function or abnormal conditions arising from varying degrees of B avitaminosis. Outstanding among the symptoms of vitamin B deficiency is anorexia. Comparatively early in the study of the B growth factor it was observed that the food consumption of rats was dependent directly on the amount of vitamin B in the diet.[17] This seeming influence of vitamin B on appetite was interpreted as secondary to the more direct effect on growth processes, in which an improved general condition led the animals to raise their level of food consumption to meet the increased needs arising from more rapid growth. However, the desire to partake of food seems to be related directly to the vitamin B intake, because failure of appetite intervenes in vitamin B deficiency and resumption of eating follows separate administration of the vitamin to starving animals.[8] Further, changes in body weight of animals follow food intake; the sequence of events is B deficiency, anorexia, diminished intake, loss of weight. But anorexia from B deficiency is not qualitatively different from loss of appetite due to other reasons; therefore, loss in weight is not pathognomonic of vitamin B deficiency. That the influence of the antineuritic vitamin acts specifically on appetite has been corroborated by restoring a failing appetite by means of a vitamin B concentrate.[18] Which individual component of the B complex is responsible for anorexia has been investigated with results that are equivocal, but it is believed that another component, not vitamin G, is required to supplement the antineuritic B factor in stimulating the appetite.[19]

As might be expected, it was suggested that the striking influence of vitamin B over appetite could be attributed to stimulation of secretion in certain glands, particularly those important in digestion. Accordingly, evidence for the identity of vitamin B with secretin was presented,[20] but eventually this attractive theory succumbed for want of confirmation.[21]

The cause for the loss of appetite occurring with avitaminosis B was then sought in disturbed functions elsewhere in the alimentary tract. From pathologic observations recorded by McCarrison it appeared that vitamin deficiencies induced intestinal lesions, among them degeneration of Auerbach's plexus.[22] The connotation of an effect on intestinal activity appeared to be borne out by the observation of marked intestinal stasis in vitamin B deficient animals.[23] This stasis was attributed, in the chain of reasoning, to gastric and intestinal atony with decreased alimentary rate. By means of a gastric fistula [24] the association of gastric atony with vitamin B deficiency was established; fluoroscopic examination showed hypomotility of the gastro-intestinal tract.[25] Despite these data, the difficulty in demonstrating that diminished gastric tone impairs the appetite was freely admitted; generalized systemic disturbances could as well be responsible for the anorexia. Further, the failure of Kon and Drummond to establish any difference in the alimentary rate between B deficient and normal pigeons seems to indicate that anorexia in the deficient birds is not necessarily connected with impaired motile function of the alimentary canal.[10]

Disturbed digestion has been advanced as a possible explanation of the symptomatology seen in vitamin B deficient pigeons. It was not unreasonable to suspect that polyneuritic pigeons suffered from digestive disorders, because a complete loss of amylolytic and lipolytic,[26] together with a marked decrease of proteolytic enzymes,[27] was reported as characteristic of the birds. Yet, repeated functional analyses on starch and protein digestion in polyneuritic pigeons and rats have invariably failed to show any impairment.[28]

Even the absorptive and assimilatory processes of animals have been assumed to be at fault in B avitaminosis. This theory rests on the anatomic evidence that vitamin B deficiency causes atrophy of the lymphoid tissue of the ileum.[29] Unfortunately, determinations of absorption of dextrose from the alimentary tract have not furnished a convincing answer.[30] In regard to malassimilation ensuing from a vitamin B deficiency, it is not uninteresting to recall Bichel's demonstration that dogs suffering from multiple vitamin deficiencies excreted proportionately more carbon than nitrogen in the urine, leading to an increased

16. Kruse, H. D., and McCollum, E. V.: Physiol. Rev. **9**: 126 (Jan.) 1929.
17. Osborne, T. B., and Mendel, L. B.: J. Biol. Chem. **31**: 149 (July) 1917.
18. Sherman, H. C., and Sandels, M. R.: J. Nutrition **3**: 395 (Jan.) 1931. Sure, Barnett: Ibid. **1**: 49 (Sept.) 1928.
19. Burack, Ethel; and Cowgill, G. R.: Proc. Soc. Exper. Biol. & Med. **28**: 750 (April) 1931. Graham, C. E., and Griffith, W. H.: Ibid. **28**: 1086 (June) 1931.
20. Uhlmann, F.: Ztschr. f. Biol. **68**: 419, 1918. Voegtlin, Carl; and Myers, C. N.: J. Pharmacol. & Exper. Therap. **13**: 301 (July) 1919.
21. Anrep, G. V., and Drummond, J. C.: J. Physiol. **54**: 349 (March) 1921. Cowgill, G. R.: Proc. Soc. Exper. Biol. & Med. **18**: 148, 1921. Downs, A. W., and Eddy, N. B.: Am. J. Physiol. **58**: 296 (Dec.) 1921. Cowgill, G. R., and Mendel, L. B.: Ibid. **58**: 131 (Nov.) 1921.
22. McCarrison, R.: Brit. M. J. **2**: 36 (July 12) 1919; **1**: 823 (June 19) 1920.
23. Gross, L.: J. Path. & Bact. **27**: 27 (Jan.) 1924.
24. Cowgill, G. R.; Deuel, H. J.; Plummer, Norman; and Messer, F. C.: Am. J. Physiol. **77**: 389 (July) 1926.
25. Menville, L. J.; Ané, J. N., and Blackberg, S. N.: Proc. Soc. Exper. Biol. & Med. **27**: 894 (June) 1930.
26. Farmer, C. J., and Redenbaugh, H. E.: Am. J. Physiol. **75**: 45 (Dec.) 1925.
27. Rosedale, J. L., and Oliveiro, C. J.: Biochem. J. **22**: 1362, 1928.
28. Kon and Drummond (footnote 10). Hassan, Ali; and Drummond, J. C.: Biochem. J. **21**: 653, 1927. Bergeim, Olaf: Proc. Soc. Exper. Biol. & Med. **25**: 457 (March) 1928. St. Julian, R. R., and Heller, V. G.: J. Biol. Chem. **90**: 99 (Jan.) 1931.
29. Cramer, W.: Lancet **1**: 1046 (May 26) 1923.
30. Pierce, H. B.; Osgood, H. S., and Polansky, J. B.: J. Nutrition **1**: 247 (Jan.) 1929.

C/N ratio. This condition was attributed to the appearance of partially oxidized carbon compounds in the urine.[31] Of possible significance in this connection was the later separation of a large amount of a lipoidal substance from the urine of dogs on a B deficient diet.[32] The thought was expressed that the fatty substance might be responsible for the increased carbonuria; but, whatever importance this observation seemed to portend for vitamin B physiology was soon seen to be misplaced because the increased urinary C/N ratio has been shown to occur when the diet is deficient, not in antineuritic B, but in the heat-stable component G.[33]

Akin to the hypothesis that vitamin B presides over the activities of the gastro-intestinal tract has been the view that it is necessary for the utilization of the principal types of foodstuffs. On diets with high protein content, for example, nursing young were said not to thrive unless the proportion of vitamin B was commensurately increased;[34] and substantially the same relation was found to prevail for young growing rats.[35] Further, renal hypertrophy results from ingestion of diets rich in protein but low in the antineuritic substance, according to Reader and Drummond.[36] But, again, vitamin B has apparently been credited unwittingly for a function exerted by another component; the protective factor rendering high protein diets adequate for growth has now been characterized as alkali-stable [37] and heat-stable.[38] It should be mentioned that any ration of high protein requiring liberal amounts of vitamin B is at variance with Funk's views, who holds that high protein demands less B.[39] More recently the increased B requirements of rats on high protein diets has not been corroborated, Renal enlargement occurs on high protein diets regardless of the content of vitamin B,[40] and during the growth period at least the B requirement of the rat is not influenced by protein intake.[41]

Curiously enough, Hopkins [42] has noted that a moderate excess of cod liver oil is often injurious to rats unless "balanced" by an increased marmite (yeast preparation) allowance. Indeed, an increase of cod liver oil concentrate necessitates a pro rata addition of vitamin B, if the animal is to escape death.[43] It was suggested that between vitamin A and the B complex exists an antagonistic relation. The striking feature about animals given large doses of cod liver oil, even in the presence of adequate yeast, is their manifestation of symptoms resembling those of a vitamin B deficiency; the condition is alleviated by further increments of yeast.[44] Moreover, certain amines found in cod liver oil produce the same effects seen in B avitaminosis. That the toxic action of cod liver oil may, therefore, not be due to hypervitaminosis is a valid possibility.

Considerable attention has long been attracted to the place of vitamin B in carbohydrate metabolism. Because of the more rapid production of polyneuritis by carbohydrate-rich diets, the necessity of the antineuritic vitamin for utilization of carbohydrates was early emphasized.[45] Yet unhappily the evidence dealing with such a purported relationship has been so consistent in its contradictions that it almost defies a decision. Whereas in one instance the respiratory quotient failed to rise following the injection of dextrose into polyneuritic animals,[46] in another instance the quotient increased slowly but definitely.[47] Again, dextrose tolerance remained undisturbed in B deficient animals, it was asserted by Eggleton and Gross,[48] while diminished tolerance definitely characterized the moribund state of animals of other investigators.[49] As corroborative evidence that vitamin B actually does participate in carbohydrate metabolism, the presence of a hyperglycemia in polyneuritic pigeons has been repeatedly reported;[50] but the complication of inanition has so confused the results that present interest centers on acceptable technic to the neglect of the major issue. It now appears that the course of events for both rats [51] and pigeons [52] on B deficient diets is a hyperglycemia during the greater part of the deficiency period, followed by a hypoglycemia in the moribund stage due to a reduced metabolism. Since starving pigeons likewise show a hyperglycemia [52] which cannot be altered by administration of B concentrates,[53] it seems highly probable that the hyperglycemia in polyneuritic pigeons is the manifestation of inanition.[10] On this basis the normal sugar values reported by Stucky and Rose for dogs on B deficient diets indicate that their animals were not yet suffering from inanition.[54]

In line with the view that a lowered blood sugar represents the true terminal picture of B avitaminosis, Sure and Smith assert that when the maternal diet is deficient in the antineuritic B factor the nursing young show either a progressive hypoglycemia or a slight hypoglycemia followed by a precipitous drop in the premortal stage.[55] Under these conditions, vitamin B therapy produces a rapid increase in the concentration of blood sugar. In their studies on the blood sugar values of weaned and adults rats, they employed a method for determining sugar which removed nonfermentable reducing substances, thus providing data on true as well as apparent sugars. They found in antineuritic deficiency a rise in nonreducing sugars; on the other hand, no disturbance in the concentration of true sugar occurred until the later stages of avitaminosis.[56]

Another bodily function that has been supposed to undergo change in vitamin B deficiency is oxidation. Lowered oxygen consumption has been described for polyneuritic tissues,[57] but repetition of the work by

31. Bickel, A.: Biochem. Ztschr. **146:** 493, 1924; Roche, J.: Compt. rend Soc. de biol. **99:** 589 (July 27) 1928.
32. Collazo, J. A., and Munilla, A.: Compt. rend. Soc. de biol. **99:** 1448 (Nov. 9) 1928.
33. Kon, S. K.: J. Nutrition **1:** 467 (July) 1929.
34. Hartwell, G. A.: Biochem. J. **15:** 140 (Nov. 8) 1921; **16:** 78, 1922; **18:** 785, 1924; Lancet **2:** 956 (Nov. 8) 1924; Biochem. J. **19:** 1075, 1925.
35. Drummond, J. C.; Crowden, G. P., and Hill, E. L. G.: J. Physiol. **56:** 413 (Oct.) 1922.
36. Reader, Vera; and Drummond, J. C.: J. Physiol. **59:** 472 (March) 1925; Biochem. J. **20:** 1256, 1926.
37. Hassan, Ali; and Drummond, J. C.: Biochem. J. **21:** 653, 1927.
38. Hartwell, G. A.: Biochem. J. **22:** 1212, 1928.
39. Funk, Casimir; Collazo, J. A., and Kaczmarek, J.: Compt. rend. Soc. de biol. **92:** 997 (April 3) 1925.
40. Francis, Lillias D.; Smith, A. H., and Moise, T. S.: Proc. Soc. Exper. Biol. & Med. **26:** 725 (May) 1929.
41. Sherman, H. C., and Gloy, O. H. M.: J. Biol. Chem. **74:** 117 (July) 1927.
42. Hopkins, F. G.: Brit. M. J. **2:** 693 (Oct. 20) 1923.
43. Harris, L. J., and Moore, Thomas: Biochem. J. **23:** 1114, 1929.
44. Norris, E. R., and Church, A. E.: J. Biol. Chem. **89:** 437 (Nov.) 1930.
45. Funk, Casimir: Ztschr. f. physiol. Chem. **89:** 378, 1914.
46. Magne, H., and Simonnet, H.: Bull. Soc. chim. biol. **4:** 419, 1922.
47. Mattill, H. A.: J. Biol. Chem. **55:** 717 (April) 1923.
48. Eggleton, P., and Gross, L.: Biochem. J. **19:** 633, 1925.
49. Lepkovsky, Samuel; Wood, Clarence; and Evans, H. M.: J. Biol. Chem. **87:** 239 (June) 1930.
50. Funk, Casimir; and von Schönborn, E.: J. Physiol. **48:** 328, 1914. Funk, Casimir: Ibid. **53:** 247, 1919. Redenbaugh, H. E.: Proc. Soc. Exper. Biol. & Med. **24:** 842 (June) 1927.
51. Eggleton and Gross (footnote 48). Drummond, J. C., and Marrian, G. F.: Biochem. J. **20:** 1229, 1926.
52. Collazo, J. A.: Biochem. Ztschr. **134:** 194, 1922.
53. Marrian, G. F.; Baker, L. C.; Drummond, J. C., and Woollard, Herbert: Biochem. J. **21:** 1336, 1927.
54. Stucky, C. J., and Rose, W. B.: Am. J. Physiol. **89:** 1 (June) 1929.
55. Sure, Barnett; and Smith, Margaret E.: J. Biol. Chem. **82:** 307 (May) 1929.
56. Sure, Barnett; and Smith, Margaret E.: J. Biol. Chem. **84:** 727 (Nov.) 1929.
57. Abderhalden, Emil; and Schmidt, L.: Arch. f. d. ges. Physiol. **185:** 141, 1920.

other investigators has shown only normal oxidative capacity for muscle tissue from B deficient pigeons, even when the bird was moribund.[58] Yet it seemed advisable to test the oxygen requirements of the intact animal in want of the antineuritic substance, because conceivably the tissues might have normal oxidative agents while the whole body for some reason was showing a lowered gaseous exchange. This contingency was not borne out on investigation; the mechanism for cellular oxidation was unimpaired in the deficient birds, and the low values obtained in the final stages were comparable to those seen in inanition with exhaustion of food reserves.

The most recent developments in this phase of vitamin B physiology are of unusual interest. Directly in opposition to the observations recorded in the foregoing paragraph, fresh evidence now implicates the oxidative processes for responsibility in the neurologic disturbances of polyneuritis. According to Kinnersley and Peters,[59] pigeons showing symptoms of opisthotonos in the terminal stages of avitaminosis B have an increased amount of lactic acid in their brains. This accumulation of lactic acid is concomitant with neurologic symptoms in avitaminosis B, and it disappears within a short period after vitamin B therapy. Quite naturally, the mechanism of increase of lactic acid in the brain next excited inquiry. Available data indicated that it was the consequence not of a hyperglycemia but of a lacto-acidemia. But the importance attached to the blood-lactic acid in the process was short lived. Careful search in the brain to ascertain whether the increased lactic acid content was diffuse or focal in its distribution revealed that the acid accumulation was localized largely in the lower part.[60] Such a distribution restricted to one region indicated that no direct relation existed between the lactic acid of the blood and that of the brain; but it did suggest some localized abnormality, perhaps an oxidative deficiency in a small area, not detectable grossly in studies on the brain in toto. True to presumption, a lowered power of oxygen uptake was found in the brain, with the exception of the cerebellum, of pigeons with impending polyneuritic symptoms.[61] An enzyme deficiency was cited as the cause. But Guha[62] prefers to believe that the lactic acid accumulates in foci of the brain, owing to interference with its synthetic rather than its oxidative removal. Dissenting somewhat from all these details, Vogt-Møller[63] has expressed the view that the symptoms of B avitaminosis are caused by intoxication with accumulated methyl glyoxal rather than lactic acid. He attributes an increased methyl glyoxal concentration to a deficiency not of glyoxalase but of a co-enzyme.

As Drummond has emphasized, many of the abnormalities exhibited by animals deprived of vitamin B, such as lowered body temperature and respiratory metabolism, loss of weight, and hyperglycemia, are the result of inanition arising from anorexia rather than from a specific deficiency of the antineuritic vitamin per se. True vitamin B deficiency is characterized by anorexia and convulsive seizures associated with focal accumulation of lactic acid in the brain. At this point it is pertinent to mention that rats depleted of vitamin B during their nursing period are definitely inferior in maze learning to normal rats.[64] The offspring of the depleted animals, however, are able to attain the normal level of learning ability, provided they are raised on a diet rich in vitamin B complex. Whether impaired mental processes have a basis in the local increase of lactic acid in the brain is an engaging item for speculation.

To the list of true symptoms associated with B avitaminosis, Drury and his co-workers[65] would make an addition; namely, severe bradycardia, not ascribable to inanition, and relieved at once by administration of vitamin B. Then, too, other functional disorders have been described in animals suffering from lack of the antineuritic principle. As regards the reproductive system, females show delayed sexual maturity and a definite disturbance in the estrous cycle, whereas males manifest a lessened sexual interest, although the anatomic and functional integrity of their germinal elements is unaffected.[66]

In the blood, changes in both cellular and chemical content have been charged to vitamin B deficiency. Disturbance in the hematopoietic function, associated with anhydremia, is said to occur in B avitaminosis, but the anhydremia is attributed to inanition.[67] Lymphopenia in the absence of leukopenia also occurs in vitamin B deprivation.[68] Considering changes of the usual chemical constituents of the blood and tissues, we find that polyneuritic rats, whether in the nursling, growing or mature age, show no lowering of alkali reserve.[69] Nurslings on B deficient diets are subject to extreme decrease of liver glycogen.[70] In lactating mothers, nursing young, and weaned animals there is marked lipemia, in which lecithins, fatty acids, and the iodine number of the fatty acids are markedly increased.[71] Attempts to correlate the convulsive seizures of B avitaminosis with low blood calcium have been uniformly unsuccessful.[72]

PATHOLOGY

In the past, almost all pathologic records on polyneuritic pigeons have listed, as typical of the results of vitamin B deficiency, the following anatomic changes: nerve fibers in varying stages in degeneration; atrophy of the thymus and voluntary muscle; enlargement of the heart and suprarenals; atrophy of mucous and muscular layers of the gastro-intestinal tract, together with an enteritis; and degeneration of the mesenteric plexus of Auerbach.[73] In accord with these observations, histologic examination of both the central and the peripheral nervous system in B deficient dogs has revealed a myelin degeneration patchily distributed

58. Drummond and Marrian (footnote 51).
59. Kinnersley, H. W., and Peters, R. A.: Biochem. J. **23**: 1126, 1929.
60. Kinnersley, H. W., and Peters, R. A.: Biochem. J. **24**: 711, 1930.
61. Gavrilescu, Nicolai; and Peters, R. A.: Biochem. J. **25**: 1397, 1931.
62. Guha, B. C.: Biochem. J. **25**: 1367, 1931.
63. Vogt-Møller, P.: Biochem. J. **25**: 418, 1931.
64. Maurer, Siegfried; and Tsai, Loh Seng: J. Comp. Psych. **11**: 51 (Oct.) 1930; J. Nutrition **4**: 507 (Nov.) 1931.
65. Drury, A. N.; Harris, L. J., and Maudsley, Cecil: Biochem. J. **24**: 1632, 1930.
66. Evans, H. M., and Bishop, K. S.: J. Metab. Research **1**: 335 (March) 1922. Evans, H. M.: J. Nutrition **1**: 1 (Sept.) 1928.
67. Sure, Barnett; Kik, M. C., and Walker, Dorothy J.: J. Biol. Chem. **83**: 387 (Aug.) 1929. Rose, W. B., and Stucky, C. J.: Proc. Soc. Exper. Biol. & Med. **25**: 687 (May) 1928.
68. Cramer, W.; Drew, A. H., and Mottram, J. C.: Lancet **1**: 963 (May 7) 1921; **2**: 1202 (Dec. 10) 1921. Sure, Barnett; Thatcher, H. S., and Walker, Dorothy J.: Avitaminosis, Arch. Path. **11**: 413 (March) 1931.
69. Sure and Smith (footnote 56). Sure, Barnett; and Kik, M. C.: Proc. Soc. Exper. Biol. & Med. **27**: 860 (May) 1930.
70. Sure, Barnett; and Smith, Margaret E.: Proc. Soc. Exper. Biol. & Med. **27**: 861 (May) 1930.
71. Sure, Barnett; and Smith, Margaret E.: Avitaminosis, J. A. M. A. **97**: 301 (Aug. 1) 1931.
72. Ungar, A.: Biochem. Ztschr. **180**: 357, 1926. Kon and Drummond (footnote 10). Smith, Emma A.: Am. J. Physiol. **80**: 485 (May) 1927. Schelling, Victor: J. Biol. Chem. **89**: 575 (Dec.) 1930.
73. Vedder, E. B., and Clark, E.: Philippine J. Sc., B **7**: 423, 1912. Funk, Casimir; and Douglas, M.: J. Physiol. **47**: 475, 1914. McCarrison, R.: Indian J. M. Research **6**: 275 (Jan.) 1919; **7**: 269 (Oct.) 1919; footnote 22, first reference.

in the vagus, brachial and sciatic nerves, and in the focal degenerative lesions in the cerebrum and pons.[74]

However, reexamination of the tissues of B deficient animals under more carefully controlled conditions has brought an altered conception of the pathology specific for B avitaminosis. Because of the slight nerve degeneration in polyneuritic birds, and because of the remarkable promptness with which vitamin B alleviated the neuritic condition, Schnyder [75] could not believe that the nervous symptoms resulted from degenerative changes in the nerves. Moreover, Kon and Drummond [10] assert that there is little neurologic ground for supposing that head retraction in polyneuritic pigeons depends on changes in the nerves of neck muscles; for they saw large numbers of normal fibers and endings in the intermuscular nerves. What is even more cogent, they confirmed Woollard's [76] view that starvation and cachexia are largely, if not entirely, responsible for the nerve changes seen in vitamin B deficient pigeons. In reiterating Schnyder's conclusions, they said: "No nerve regeneration is possible in the course of a few hours, so nervous symptoms, vanishing so rapidly under action of vitamin B, must be due to a quite different cause."

In his original report, McCarrison [22] described hypertrophy of the suprarenal glands and increased output of epinephrine not only in B deficiency but also in inanition. In addition to confirming the hypertrophy of suprarenals in beriberi pigeons, Beznak [77] could find no enlargement in starving pigeons receiving only vitamin B. In his opinion, suprarenal hypertrophy was specific for B deficiency. After weighing the contradictory evidence, Drummond and Marrian [51] straddled the question by pointing out that the hypertrophy "is not characteristic of vitamin B deficiency, unless starvation be regarded as a form of this disorder." Thereafter, Kon and Drummond [10] tended to subscribe to Beznak's view that the suprarenal enlargement was due specifically to avitaminosis B, but they called attention to the inadequacy of their data. Further investigation, however, failed to substantiate their preliminary results, since the hypertrophy, occurring in the late stage of starvation, was not prevented by extracts rich in vitamin B.[53] Finally, new evidence led Marrian to return virtually to Beznak's stand, except that a deficiency of the two factors, B and G, was believed to play a part in the enlargement of the suprarenals, the vitamin B deficiency being the more important.[78] It was stated that the cortex is the site of suprarenal hypertrophy in most cases of B deficiency, the medulla being involved when starvation complicates the picture.

In rats stunted by deficiency of vitamin B, body form is different from that of normal animals of the same age.[79] In proportion to body length, the deficient animals have smaller chests and longer bones of all extremities. Moreover, they have bone lesions that are essentially identical with those seen in guinea-pigs suffering from acute and uncomplicated scurvy.[80] Marrow elements are destroyed and replaced by reticular tissue supporting widely dilated, congested blood vessels. Hemorrhages may occur later. Similarly, nurslings succumbing to B deficiency show hemorrhages in the osteogenic tissues, particularly near the occipitoparietal sutures.[81] High protein or low protein plus glycine and alanine, with an inadequate amount of vitamin B, is said to produce atrophy of the thymus and hypertrophy of the thyroid in adult rats.[82] In the same species suprarenal glands are enlarged as the result of either B or G deficiency, but the greater degree of hypertrophy under the latter condition is ascribed to the longer survival period.[83] Atrophy of both the spleen and the thymus has been reported.[84]

BODILY REQUIREMENTS OF VITAMIN B

It is believed that the vitamin B requirements are increased during lactation, but the view is by no means generally accepted.[85] In studies on the physiology of the mammary gland, McCollum [85] found that vitamin B passes into the mother's milk only when it is present in her diet. According to Macy, lactating rats fed human milk as a source of vitamin B at a level previously ascertained to be adequate for growth and reproduction showed unsuccessful lactation, in that there was a high mortality of nursing young and those surviving were much debilitated. The adverse conditions could be alleviated by addition of yeast to the diet of the mother. It was determined that the vitamin B requirement of the lactating rat is from three to five times its growth need. The increased requirement of the antineuritic vitamin for successful mammary function is due to the inability of the lactating mother to secrete the vitamin quantitatively in the milk. Whether the antineuritic factor is the only component of the B complex, which must be furnished in liberal amount to the lactating rats, is a matter in which there is a difference of opinion. Evans advises that the additional B required in the maternal diet may be supplied just as successfully by antineuritic B concentrates as by yeast; therefore, the animal needs a surplus of B, not G. Contrary to that conclusion, Sure adduces evidence that B and G are the limiting factors in lactation, and that proportionately greater amounts of each are necessary for normal lactation, in contrast to growth. In this stand, Sure was confirmed by Husseman and Hetler. In contrast to the question of how many components of the B complex are involved in the magnified needs of lactation is the belief that an insufficiency of the B complex is in no way responsible for unsuccessful lactation. Although superheated milk as the source of B in the maternal diet failed to support lactation, Daniels saw no symptoms indicative of a B deficiency in the nursing young. Rather, she attributed the debilitation of the nursing young to the inability of the maternal rat to ingest sufficient milk to meet the caloric requirements; i. e., poor

74. Zimmerman, H. M., and Burack, Ethel: Proc. Soc. Exper. Biol. & Med. **28**: 645 (March) 1931.
75. Schnyder, K.: Arch. f. Verdauungskr. **20**: 147, 1914.
76. Woollard, H. H.: J. Anat. **61**: 283 (April) 1927.
77. von Beznak, A.: Biochem. Ztschr. **141**: 1, 1923.
78. Marrian, G. F.: Biochem. J. **22**: 836, 1928.
79. Quinn, E. J.; King, C. G., and Dimit, B. H.: J. Nutrition **2**: 7 (Sept.) 1929.
80. Shipley, P. G.; McCollum, E. V., and Simmonds, Nina: J. Biol. Chem. **49**: 399 (Dec.) 1921.
81. Sure, Barnett; and Schelling, S. J.: Vitamin Requirements of Nursing Young, Am. J. Dis. Child. **35**: 811 (May) 1928. Sure, Thatcher and Walker (footnote 68).
82. Daniels, Amy L., and White, Ruth B.: Proc. Soc. Exper. Biol. & Med. **27**: 760 (May) 1930.
83. Findlay, G. M.: J. Path. & Bact. **31**: 353 (April) 1928. Sure, Thatcher and Walker (footnote 68). Thatcher, H. S.; Sure, Barnett; and Walker, D. J.: Avitaminosis, Arch. Path. **11**: 425 (March) 1931.
84. Sure, Thatcher and Walker (footnote 68).
85. McCollum, E. V.; Simmonds, Nina; and Pitz, W.: J. Biol. Chem. **27**: 33, 1916. McCollum, E. V., and Simmonds, Nina: Am. J. Physiol. **46**: 275 (June) 1918. Sure, Barnett: J. Biol. Chem. **62**: 371 (Dec.) 1925. Macy, Icie G.; Outhouse, Julia; Long, M. Louisa; and Graham, Alice: Ibid. **73**: 153 (May) 1927. Macy, Icie G.; Outhouse, Julia; Graham, Alice; and Long, M. Louisa: Ibid. **73**: 189 (May) 1927. Sure, Barnett: Ibid. **74**: 55 (July) 1927. Evans, H. M., and Burr, G. O.: Ibid. **76**: 263 (Jan.) 1928. Sure, Barnett: Ibid. **76**: 685 (March) 1928; ibid. **80**: 297 (Nov.) 1928. Husseman, D. L., and Hetler, R. A.: J. Nutrition **4**: 127 (May) 1931. Sure, Barnett; and Walker, Dorothy J.: J. Biol. Chem. **91**: 69 (April) 1931. Daniels, Amy L.; Jordon, Dorothy; and Hutton, Mary K.: J. Nutrition **2**: 19 (Sept.) 1929. Daniels, Amy L.; Hutton, Mary K., and Marks, Catherine: Proc. Soc. Exper. Biol. & Med. **27**: 759 (May) 1930. Waddell, J.; Steenbock, Harry; and Hart, E. B.: J. Nutrition **4**: 53 (May) 1931. Sure, Barnett: Ibid. **2**: 485, 1929.

mammary function was a matter of inadequate milk secretion instead of a qualitative deficiency in B. Waddell subscribes to this interpretation, but Sure takes issue on the basis of technic. In the same vein of skepticism regarding the direct relation of vitamin B to lactation, the argument has been presented that lactating rats on diets deficient in B consume approximately 50 per cent less food than do those on the same rations fortified with an abundance of B. The inference is obvious. But the use of the paired feeding method, in which control animals on an adequate diet are limited in their caloric intake to the same level recorded for the experimental animals on the B deficient diet, has shown that the antineuritic vitamin exerts a specific action on lactation, unrelated to the plane of nutrition.

Nothing better reflects the unsatisfactory nature of our knowledge concerning the function of vitamin B than the number and variety of theories pertaining to its purported rôle in metabolism.[86] That protection against the deleterious effects of high protein or the toxic nitrogenous bases in fish oils necessitates a commensurately high level of vitamin B has already been mentioned. On the other hand, Funk in his early work maintained that the greater the amount of protein, the less the amount of vitamin B necessary in the diet; in fact, he assumed that protein exerts a sparing action on the antineuritic factor. Further, since carbohydrate diets seemed to induce polyneuritis more rapidly, he concluded that vitamin B requirements rose *pari passu* with increasing amounts of carbohydrate in rations. As a baffling example of diametrical results, Funk announced that excess of fat caused a nutritional disturbance in rats; whereas Evans furnished evidence that an excess of certain fats exerted a sparing action on vitamin B.

Aside from the effect of large amounts of protein, fat or carbohydrate in the diet, the condition of an animal with respect to its age, weight, and energy level is significant in fixing its vitamin B requirement.[87] Although Daniels holds the view that the vitamin B requirement per unit of body weight is higher in early infancy than later and decreases with age, most investigators agree that there is a quantitative relationship between the antineuritic vitamin and growth which reflects a greater need for B as the animal progresses through the growth period. It has been suggested that the amount of vitamin B necessary for successful nutrition is directly proportional to the calories consumed, but this view has met vigorous objection. In relating the B requirements of an animal not to one circumstance, but to both weight and caloric level, Cowgill has translated the animal's needs into terms of a comprehensive, mathematical formula.

DISTRIBUTION

With the knowledge that vitamin B in the older sense is a complex comprising several factors, the evidence for the wide distribution of the antineuritic component, based on positive tests in the past, remains unchanged. But refined technic has shown the relative concentration of B as contrasted with G in a variety of foodstuffs. Oats, corn, wheat, wheat embryo, the outer layers of rice, rice polishings and red kidney beans are relatively richer in the antineuritic B component than in G;[88] while milk, egg-white, banana and cooked fresh spinach have a preponderance of G.[89] That yeast is an excellent source of both factors has been amply demonstrated,[90] but quantitative tests on several samples have revealed that the concentration of B varies considerably, while the G content is relatively uniform.[91] Owing to the variability of the B content, vitamin G may be the limiting factor in yeast as often as B. The relative concentrations of the B and G components in both leafy and root vegetables have been assayed by Roscoe with profitable results.[92]

PROPERTIES

Recent work on the properties of vitamin B has been essentially a confirmation of data already recorded. The antineuritic vitamin is soluble in water and in alcohol of concentrations from 83 to 93 per cent by weight, whereas vitamin G is insoluble in 95 per cent alcohol, only appreciably soluble in 80 per cent alcohol, and its solubility becomes greater as the proportion of water in the alcohol-water mixture is increased.[93] Vitamin B is insoluble in chloroform, carbon tetrachloride, ether, acetone, and ethyl acetate. As is well known, the antineuritic vitamin is susceptible to destruction at high temperatures, the extent being dependent on the temperature, time and conditions of exposure; it is likewise sensitive to alkalis to a degree determined by the temperature, time and strength of the alkali.[94] Autoclaved yeast has been generally used as a source of vitamin G under the impression that the B component had been largely destroyed, but Williams and his associates assert that autoclaving brewers' yeast at 15 pounds steam pressure for six or even twelve hours does not insure complete destruction of the vitamin B present.[95]

The maximum adsorption of antineuritic B on fullers' earth occurs at p_H 4, according to Salmon.[96] That B is adsorbable both by animal charcoal and by silica gel has been maintained, but Evans was unable to demonstrate the adsorption of B on either substance.[97] When Hogan and Hunter asserted that the vitamin B complex exposed to a quartz mercury arc suffered destruction of G but retained its antineuritic activity, high hope was held of obtaining a pure source of vitamin B.[98] The consensus is, however, that ultra-

86. Funk (footnote 45). Funk, Casimir; and Dubin, H. E.: Science **52**: 447, 1920. Evans, H. M., and Leupkovsky, Samuel: J. Biol. Chem. **83**: 269 (Aug.) 1929; **92**: 615 (Aug.) 1931; J. Nutrition **2**: 1 (Sept.) 1929.

87. Osborne, T. B., and Mendel, L. B.: J. Biol. Chem. **54**: 739 (Dec.) 1922; **63**: 233 (March) 1925. Cowgill, G. R.; Smith, A. H., and Beard, H. H.: Ibid. **63**: xxiii, 1925. Plimmer, R. H. A.; Rosedale, J. L., and Raymond, W. H.: Biochem. J. **21**: 1141, 1927. Reader and Drummond (footnote 36, second reference). Roscoe, Margaret H.: Biochem. J. **25**: 1205, 1931. Gulick, Adaline W., and Daniels, Amy L.: Proc. Soc. Exper. Biol. & Med. **28**: 861 (June) 1[illegible]

88. Smith and Hendrick (footnote 5). Goldberger, Wheeler, Lillie and Rogers (footnote 7). Hauge, S. M., and Carrick, C. W.: J. Biol. Chem. **69**: 403 (Aug.) 1926. Hunt, C. H.: Bull. 415, Ohio Agric. Exper. Sta., 1927. Sherman, H. C., and Axtmayer, J. H.: J. Biol. Chem. **75**: 207 (Oct.) 1927. Chick, Harriette; and Roscoe, Margaret H.: Biochem. J. **21**: 698, 1927. Evans, H. M., and Burr, G. O.: J. Biol. Chem. **77**: 231 (April) 1928. Evans, H. M., and Lepkovsky Samuel: J. Nutrition **3**: 353 (Jan.) 1931. Axtmayer, J. H.: Ibid. **2**: 353 (March) 1930.

89. Sherman and Axtmayer (footnote 88). Hunt, C. H., and Krauss, W. E.: J. Biol. Chem. **79**: 733 (Oct.) 1928. Chick, Harriette; and Roscoe, Margaret H.: Biochem. J. **23**: 498, 1929. Eddy, W. H.: Proc. Soc. Exper. Biol. & Med. **25**: 125 (Nov.) 1927.

90. Smith and Hendrick (footnote 5). Goldberger, Wheeler, Lillie and Rogers (footnote 7).

91. Quinn, E. J.; Whalen, F. B., and Hartley, J. G.: J. Nutrition **3**: 257 (Nov.) 1930.

92. Roscoe, Margaret H.: Biochem. J. **24**: 1754, 1930; **25**: 1205, 1931.

93. Kruse and McCollum (footnote 16). Goldberger, Wheeler, Lillie and Rogers (footnote 7). Chick, Harriette; and Roscoe, Margaret H.: Biochem. J. **23**: 504, 1929. Evans and Lepkovsky (footnote 88). Sherman and Sandels (footnote 18).

94. Daniels, A. L.; Giddings, M. L., and Jordan, D. P.: J. Nutrition **1**: 455 (May) 1928. Kinnersley, H. W., and Peters, R. A.: Biochem. J. **22**: 419, 1928. Guerrant, N. B., and Salmon, W. D.: J. Biol. Chem. **89**: 199 (Nov.) 1930.

95. Williams, R. R.; Waterman, R. E., and Gurin, Samuel: J. Biol. Chem. **83**: 321 (Aug.) 1929.

96. Salmon, W. D.; Guerrant, N. B., and Hays, I. N.: J. Biol. Chem. **80**: 91 (Nov.) 1928.

97. Evans and Lepkovsky (footnote 88).

98. Hogan, A. G., and Hunter, J. E.: J. Biol. Chem. **78**: 433 (July) 1928. Chick, Harriette; and Roscoe, Margaret H.: Biochem. J. **23**: 504, 1929. Kennedy, Cornelia; and Palmer, L. S.: J. Biol. Chem. **83**: 493 (Sept.) 1929. Guerrant, N. B., and Salmon, W. D.: Ibid. **89**: 199 (Nov.) 1930.

violet irradiation exerts a destructive action on both the B and G factors, with the velocity of reaction greater for the G component.

In 1918, McCollum and Simmonds indicated that the action of nitrous acid on vitamin B left its growth-promoting properties intact. In the light of present views on the multiplicity of the vitamin, the implication is that all components of the B complex are resistant to diazotization.[99] But recent work has raised the question whether the complex is inactivated by the nitrous acid, and if so, what component suffers. Two of the British investigators, using the curative pigeon test which is specific for antineuritic B, say it is not destroyed. Reversing his previous position, Levene states that the B complex is inactivated, as a result of the destruction of the activity of vitamin G. His results, however, were not corroborated. The present trend is to the belief that drastic treatment with nitrous acid may inactivate the B component, but the destruction is attributed to side reactions. Vitamin G is regarded as being even less susceptible than B to the action of nitrous acid.

The antineuritic substance dialyzes freely through cellophane and collodion membranes; and it migrates under the influence of an electric current, behaving as a base in such experiments.[100]

ISOLATION

All concentrates, and even crystals, of the antineuritic vitamin thus far prepared have been shown to be contaminated by the presence of other components of the B complex. It is gratifying, however, that investigations of the past four years on the isolation of the antineuritic factor have been extremely fruitful, so that it seems improbable that the identity of this substance can remain hidden much longer. Very potent B fractions have now been separated. For example, Seidell has prepared a concentrate which in doses containing 0.15 mg. of nitrogen protected pigeons from loss of weight on a diet of polished rice.[101] Peters pointed out that the maintenance requirements of the pigeon demand the presence of three B factors; hence, Seidell's concentrate must be composite.[102] By further purification Seidell obtained his most active product, which was capable of (1) relieving polyneuritis in rats in 0.05 mg. doses, containing 0.0062 mg. of nitrogen; (2) preventing loss of weight in pigeons on a polished rice basal diet in alternate day doses of 0.2 mg., containing 0.025 mg. of nitrogen; (3) promoting growth in rats in doses of 0.1 mg. daily as the sole source of the antineuritic component, when supplemented with vitamin G.[103] His most active samples contained from 10 to 13 per cent of nitrogen, about 6 per cent of organically bound sulphur, and did not give the Pauly reaction.

Using cure of head retraction in polyneuritic pigeons as a positive test, Kinnersley and Peters reported that their active preparations gave a Pauly reaction, a positive qualitative test for sulphur, a positive Molisch reaction, and a negative Benedict reaction.[104] Since their purified "torulin" would not afford maintenance in pigeons, it was regarded as a more refined product than Seidell's concentrate.[102] By use of fractional precipitation with phosphotungstic acid, they prepared an antineuritic concentrate active in curing head retraction in pigeons in doses of 0.012 mg.[105]

In 1926, Jansen and Donath announced the isolation of crystalline material which in daily doses of 0.003 mg. protected bondols (rice-birds) against polyneuritis.[106] According to Eijkman, 0.2 mg. doses of the material cured polyneuritis in pigeons.[107] Analysis of the free base gave figures corresponding to the formula $C_6H_{10}ON_2$; no mention was made whether the substance contained sulphur. Their crystals gave a positive Pauly's diazo reaction, and a positive test with the Folin-Macallum uric acid reagent.

Guha and Drummond[11] repeated Jansen and Donath's work, using wheat embryo instead of rice polishings as the starting material. They obtained a final gold precipitate and gold filtrate which were inactive in the cure of polyneuritic pigeons in doses of 0.028 mg. and 0.038 mg., respectively, but were active in combination in much smaller doses; namely, 0.014 and 0.019 mg. They felt that the action of antineuritic B probably could be ascribed to more than one factor. The gold precipitate gave both color reactions noted for the Jansen and Donath crystals.

Repeating the Jansen and Donath process with minor modifications, Williams and his co-workers did not obtain crystals, but they observed that the relative distribution of activity in the various fractions corresponded roughly with that in the original work.[108] They also tested vitamin hydrochloride crystals, furnished by Jansen and Donath, on pigeons fed a basal diet of polished rice; in doses of 0.04 mg. daily, the crystals retarded the appearance of polyneuritis and death but did not prevent the loss of weight in the birds.

Williams was "disposed to take Jansen and Donath's claims of isolation seriously." Employing the curative test on the rat, Seidell and Smith likewise tested the Jansen and Donath crystals and found that the smallest effective dose was 0.04 mg., containing 0.0069 mg. of nitrogen, which amount indicated a potency comparable to that of Seidell's concentrate.[103]

Kinnersley and Peters applied the Jansen and Donath method to some yeast fractions without success.[109] They were inclined to attribute their failure to some peculiarity of yeast extracts, a speculation borne out by Williams' similar experience with yeast. Later they were supplied with Jansen and Donath's crystals, and they noted that the crystals and torulin each gave a positive Pauly test.[110] Tests of the crystals by the curative pigeon and rat methods yielded the following positive results: pigeon, 0.007 mg. daily by injection; pigeon, 0.009 mg. daily by mouth; rat, 0.005 mg. daily. They stated that the crystals were not pure but contained another component of the B complex.

99. McCollum, E. V., and Simmonds, Nina: J. Biol. Chem. **33**: 55 (Jan.) 1918. Levene, P. A., and van der Hoeven, B. J. C.: J. Pharmacol. & Exper. Therap. **29**: 227 (Oct.) 1926. Peters, R. A.: Biochem. J. **18**: 858, 1924. Guha, B. C., and Drummond, J. C.: Ibid. **23**: 880, 1929. Levene, P. A.: J. Biol. Chem. **79**: 465 (Oct.) 1928. Chick, Harriette: Biochem. J. **23**: 514, 1929. Narayanan, B. T., and Drummond, J. C.: Ibid. **24**: 19, 1930. Guerrant, N. B., and Salmon, W. D.: J. Biol. Chem. **89**: 199 (Nov.) 1930. Sherman, H. C., and Whitsitt, M. L.: Ibid. **90**: 153 (Jan.) 1931.

100. Chick and Roscoe (footnote 98). Williams and Waterman (footnote 11). Birch, T. W., and Guha, B. C.: Biochem. J. **25**: 1391, 1931.

101. Seidell, Atherton: J. Biol. Chem. **82**: 633 (June) 1929.

102. Carter, C. W.; Kinnersley, H. W., and Peters, R. A.: Biochem. J. **24**: 1832, 1930.

103. Seidell, Atherton; and Smith, M. I.: Pub. Health Rep. **45**: 3194 (Dec. 26) 1930.

104. Kinnersley, H. W., and Peters, R. A.: Biochem. J. **22**: 419, 1928.

105. Kinnersley, H. W., and Peters, R. A.: Biochem. J. **24**: 1856, 1930.

106. Jansen, B. C. P., and Donath, W. F.: Versl. d. k. Akad. v. Wetensch. **35**: 923, 1926.

107. Eijkman, Christiaan: Versl. d. k. Akad. v. Wetensch. **36**: 221, 1927.

108. Williams, R. R.; Waterman, R. E., and Gurin, Samuel: J. Biol. Chem. **87**: 559 (July) 1930.

109. Kinnersley, H. W., and Peters, R. A.: Biochem. J. **21**: 777, 1927.

110. Jansen, B. C. P.; Kinnersley, H. W.; Peters, R. A., and Reader, Vera: Biochem. J. **24**: 1824, 1930.

The Chemical Laboratory

THE FOLLOWING IS A REPORT BY THE AMERICAN MEDICAL ASSOCIATION CHEMICAL LABORATORY.

P. N. LEECH, Director.

EXAMINATION OF ETHYLENE FOR ANESTHESIA.—V

The control of anesthetic agents requires vigilance by both manufacturers and standard-enforcing agencies. Even though impurities may be slight and relatively harmless, in anesthesia the purest product obtainable should be employed. For this reason the U. S. Pharmacopeia has required high standards for ether. One who follows carefully the Notices of Judgment of the Food and Drug Administration cannot help but appreicate how alert the government has been in enforcing these standards. Pharmaceutic manufacturers have also made large expenditures investigating the keeping qualities of ether.

Ethylene is a relatively recent addition to the agents employed widely for general anesthesia. It is not described in the Pharmacopeia and therefore does not directly concern the Drug Administration of the U. S. Department of Agriculture. When ethylene first came on the market, the Council on Pharmacy and Chemistry requested the A. M. A. Chemical Laboratory to establish standards for this substance. Not only has the Laboratory established suitable standards but, because of the nonofficial status of the gas, frequent examinations[1] have been made of the market supply of ethylene. Recently there was submitted to the Council on Pharmacy and Chemistry a new brand of ethylene. It was deemed advisable at the same time this product was examined chemically to purchase market supplies of the other products described in New and Nonofficial Remedies. Accordingly, tanks of ethylene for anesthesia were purchased both in Chicago and in Columbus, Ohio. In this work the A. M. A. Chemical Laboratory again secured the cooperation of Dr. Warren R. Smith, head of the Department of Chemistry at Lewis Institute, Chicago. The results of the examinations of ten cylinders of ethylene are given in the accompanying table.

Brand	Source	Cylinder No.	Percentage Not Absorbed by Bromine water	Indicated Percentage of Ethylene	Carbon Dioxide	Carbon Monoxide	Acidity or Alkalinity	Impurities by Silver Ammonia Hydroxide
Cheney	Chicago	20771	1.1 1.1	98.9 98.9	0	0	0	0
	Columbus	78314	1.2 1.2	98.8 98.8	0	0	0	0
C. L. P.	Chicago	17405	1.2 1.2	98.8 98.8	0	0	0	0
	Columbus	16767	1.6 1.6	98.4 98.4	0	0	0	0
Lennox	Chicago	18337	1.1 1.1	98.9 98.9	0	0	0	0
	Columbus	25939	1.0 1.0	99.0 99.0	0	0	0	0
Puritan	Chicago	29052	0.5 0.5	99.5 99.5	0	0	0	0
	Columbus	20859	0.6 0.6	99.4 99.4	0	0	0	0
Walco	Chicago	1603	1.0 1.0	99.0 99.0	0	0	0	0
	Mfr.	1563	0.90 0.95	99.1 99.05	0	0	0	0

The products examined were found to comply in all respects with requirements given in New and Nonofficial Remedies for ethylene for anesthesia.

CONCLUSIONS

1. Ten cylinders, representing five brands of ethylene for anesthesia, were recently examined by the A. M. A. Chemical Laboratory. All specimens examined conformed to the standards accepted for New and Nonofficial Remedies.

2. Physicians have a wide choice in acceptable brands of ethylene for anesthesia. All the firms listed[2] test their products according to the methods worked out by the A. M. A. Chemical Laboratory and included in New and Nonofficial Remedies. A statement of chemical investigation according to these methods should be requested by physicians with each tank of ethylene purchased.

1. Reports on the examination of ethylene have appeared in THE JOURNAL, Jan. 29, 1927, p. 322; Aug. 6, 1927, p. 451; May 5, 1928, p. 1444.

2. The following brands have been accepted for inclusion in New and Nonofficial Remedies:
Ethylene-Cheney—The Cheney Chemical Co., Cleveland, Ohio.
Ethylene-C. L. P.—Certified Laboratory Products, Glendale, Calif.
Ethylene for Anesthesia—Puritan Compressed Gas Corporation, Kansas City, Mo. (formerly Kansas City Oxygen Gas Co.).
Lennox Ethylene—Ohio Chemical and Manufacturing Co., Cleveland, Ohio.
Walco Ethylene for Anesthesia—Wall Chemicals, Inc., Detroit, Mich.

Council on Pharmacy and Chemistry

PRELIMINARY REPORTS OF THE COUNCIL

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT

W. A. PUCKNER, Secretary.

TRIETHANOLAMINE

Triethanolamine, having the formula $(C_2H_4OH)_3N$, is a colorless, viscous liquid with a slight ammoniacal odor, very hygroscopic, miscible with water, imparting a strongly alkaline reaction to the solution. According to Marlin T.-R. Maynard, Triethanolamine: An Adjunct to Dermatologic Therapy (*Arch. Dermat. & Syph.* **25**:1041 [June] 1932), triethanolamine is an excellent emulsificant; it has an antiseptic and penetrating power, and when added to certain preparations used on the scalp, for example, oil of cade, it makes them more easily removable. It is intended for external application only.

Triethanolamine is supplied by the Carbide and Carbon Corporation, New York (unit of Union Carbide and Carbon Corporation), which firm has supplied a specimen of the product to the Council, and a statement of the amount of mono-ethanolamine, diethanolamine and triethanolamine contained in the product as marketed. The specimen and the standards are being studied by the A. M. A. Chemical Laboratory.

Since triethanolamine gives promise of being a desirable addition to the armamentarium of the dermatologist, the Council directed publication of this preliminary report in the hope that this might encourage work which shall bring out confirmation of the reputed advantages of the drug.

REPORTS OF THE COUNCIL

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT.

W. A. PUCKNER, Secretary.

MEDICATED CORN PLASTERS

So-called medicated corn plasters which are offered for general use by the public contain in general a caustic agent such as salicylic acid as their potent component.

The Council feels that the indiscriminate use of corn plasters containing salicylic acid by the public is not without some danger. The public is too prone to consider any lesion on the foot, especially if it is somewhat indurated, as a corn; the next step, without consulting anybody or getting medical advice, is to go to the drug store, get a corn plaster, and start its use. With the corn plaster ordinarily a razor is employed to achieve the desired results, and not infrequently a severe infection may ensue.

It is desirable and in the best interest of the public that the treatment of lesions of this type on the feet be taken care of under the supervision of a physician, for even then a case of lymphangitis may occasionally occur. Moreover, when corn plasters are used by the public on its own initiative there is the added danger that a proper diagnosis has not been made. Although such occurrences are fortunately uncommon, a member of the Council knows of cases of melanocarcinoma starting on the foot. In these cases the patient on first noticing the growth had gone to the drug store and bought a corn plaster. Naturally in such instances the result would be most disastrous.

Plantar warts are a common condition seen on the feet. If they are not properly diagnosed and treated, there is a decided tendency for these lesions to multiply rapidly, and occasionally anywhere from 25 to 30, up to 100 plantar warts are seen distributed over the bottoms of the feet. Corn plasters have no effect on such lesions, except possibly to soften the top. They do not get rid of the cause and, if anything, tend to spread the disease.

Instances of mycotic infections of the feet accompanied by a proliferation of the epidermal layers, forming more or less keratotic lesions, are frequently seen where corn plasters have been employed—naturally without benefit to the patient.

All types of pathologic conditions on the feet should be seen by the physician and the treatment for these conditions directed by the physician. If this is done, the danger of more serious infections and untoward happenings will be minimized.

The Council considers medicated corn plasters to have the status of a drug the indiscriminate and ill advised use of which by the public should not be encouraged.

Committee on Foods

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COMMITTEE ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION FOLLOWING ANY NECESSARY CORRECTIONS OF THE LABELS AND ADVERTISING TO CONFORM TO THE RULES AND REGULATIONS. THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION, AND FOR GENERAL PROMULGATION TO THE PUBLIC. THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION.

RAYMOND HERTWIG, Secretary.

PURITY FINE BREAD

Manufacturer.—Purity Baking Company, Pana, Ill.

Description.—A white bread made by the sponge dough method.

Manufacture.—The sponge dough ingredients, short patent flour of southwest wheat, water, yeast, and a yeast food containing calcium sulphate, ammonium chloride, sodium chloride and potassium bromate, are mixed in a high speed mixer. The sponge dough is fermented for from four to five hours, after which are added flour, water, salt, sucrose, lard, powdered skimmed milk and malt syrup to make the completed dough, which is cut into pieces of desired weight. The pieces are fermented for a short time, molded into loaf form, panned, further fermented, baked for from thirty to thirty-five minutes, cooled, and wrapped in wax-paper. The factory, equipment and storage rooms are kept in strictly sanitary condition.

Analysis (submitted by manufacturer).—

	per cent
Moisture (entire loaf)	36.5
Ash	1.9
Fat	2.8
Protein (N × 6.25)	10.0
Crude fiber	0.3
Carbohydrates other than crude fiber (by difference)	48.5

Calories.—2.6 per gram; 74 per ounce.

Claims of Manufacturer.—A bread of good quality.

LONG'S CLIMAX BEST PATENT FLOUR (PHOSPHATE ADDED)

LONG'S EXTRA FANCY CAKE FLOUR (PHOSPHATE ADDED)

Manufacturer.—Climax Roller Mills, Shelbyville, Ky.

Description.—A "short patent" soft winter wheat all-purpose family flour admixed with 0.5 per cent calcium acid phosphate; bleached and "matured."

Manufacture.—Local soft wheat is cleaned in "separators" to remove imperfect grains, dust and foreign material, is "scoured" in "scouring" machines by being rubbed against a metal screen to remove surface dust, which is drawn off by air suction, and is "tempered" by addition of a definite quantity of water to toughen the bran and prevent it from being pulverized in the milling processes and contaminating the flour. The tempered wheat is coarsely cut and broken only between spirally grooved "break rolls," to facilitate separation of bran from the flour portions. The broken wheat is sifted on screens, a small quantity of flour is taken off, and also some coarse particles "purified wheat middlings" not fine enough for flour but from which the better grades of flour are prepared further on in the milling process. The coarser stock of crushed wheat and bran passes through a second "break rolls," the stock from which is submitted to the same sifting process. Some flour is taken out and also some "purified middlings." The coarse stock again passes to "break rolls" and sifting machines. The reduction and sifting processes are continued until the desired flour separations have been effected. The flour taken off from the sifters goes to special flour bins. The "purified middlings" pass through "purifiers" over silk sieves, through which air currents are drawn to remove bran and chaff particles. The material is ground between smooth steel rolls; the resulting stock is sifted to remove the fine flour. The remaining coarse "middlings" is reground and resifted. The grinding and sifting are continued until all possible flour is obtained. Each time the "mill stock" is sifted, whether it comes from the "break" or "smooth" rolls, a stream of flour is produced. Some of these flour streams are dark in color and others are white and free from specks. The name "patent flour" is applied to that flour made up of those flour streams which are clean in appearance and free from discoloration and apparent specks.

Chosen flour streams are blended for these "short patent" brands of flours; the blend is treated with three-fourths ounce of Beta-chlora per barrel (99.5 per cent chlorine gas and 0.5 per cent nitrosyl chloride—a "maturing" agent to improve baking characteristics) and agitated in a batch mixer with one-fourth ounce of Novadelox per barrel (calcium phosphate and benzoyl peroxide, for bleaching) and 0.5 per cent calcium acid phosphate. The final flour is sacked in new cotton containers only.

Analysis (submitted by manufacturer).—

	per cent
Moisture	13.0
Ash	0.7
Fat (ether extraction method)	1.0
Protein (N × 5.7)	8.3
Crude fiber	0.3
Carbohydrates other than crude fiber (by difference)	76.7

Calories.—3.5 per gram; 99 per ounce.

Claims of Manufacturer.—A phosphated "short patent" "all purpose" flour for use in home baking.

SMACO (400) MALTOSE AND DEXTRINS (Spray Dried)

Manufacturer.—S. M. A. Corporation, Cleveland.

Description.—Essentially a mixture of approximately equal parts of maltose and dextrins.

Manufacture.—A definite quantity of fresh diastatic barley malt and water is admixed with cooked corn flour. The temperature of the mixture is carefully controlled so as to obtain the desired conversion of starch into dextrins and maltose. The conversion is followed analytically by determining the maltose content at regular intervals by means of the copper reduction method. When the conversion has proceeded to that point known to give the desired results, the enzymatic action is stopped by heat. The mixture is filtered to remove any insoluble protein, carbohydrate, etc. The clear filtered liquid is pasteurized and evaporated under reduced pressure to a desired concentration and then spray dried by spraying into a chamber containing hot air currents. The dried powder is packed in hermetically sealed tins.

Analysis (submitted by manufacturer).—

	per cent
Moisture	3.0
Ash	0.5
Fat (ether extract)	0.0
Protein (N × 6.25)	0.5
Reducing sugars as maltose	50.0
Dextrins (by difference)	46.0

Calories.—3.9 per gram; 111 per ounce.

Micro-Organisms.—The cooking of the corn flour, the heat treatment to stop enzymatic action and the pasteurization before spray drying assure the absence of pathogenic organisms.

Claims of Manufacturer.—This spray dried maltose and dextrins is especially prepared for use as a carbohydrate supplement for the modification of milk for infant feeding.

TODDY

Chocolate and Malt Flavored Food Drink

(Sugar, malt extract, skim milk, cocoa)

Manufacturer.—Toddy, Incorporated, Rochester, N. Y.

Description.—A powdered mixture of sucrose, malt extract, skim milk and cocoa; packed in carbon dioxide atmosphere in sealed tins.

Manufacture.—The ingredients, sucrose, dry malt extract and skim milk, and cocoa, in definite proportions, are bolted through fine screens, mixed in a batch mixer and automatically filled into cans, which are sealed in an atmosphere of carbon dioxide.

Analysis (submitted by manufacturer).—

	per cent
Moisture	1.0
Ash	2.9
Fat (ether extract)	3.3
Protein (noncaffeine and nontheobromine N × 6.25)	8.5
Theobromine	2.1
Caffeine	0.2
Reducing sugars as invert before inversion	12.5
Reducing sugars as invert after inversion	64.1
Sucrose (copper reduction method)	49.1
Crude fiber	1.5
Total carbohydrates other than crude fiber (by difference)	80.5

Calories.—3.9 per gram; 111 per ounce.

Claims of Manufacturer.—Especially intended for the preparation of table beverages with milk. Toddy enhances the food value and flavor of milk. Many who dislike plain milk, especially children, invalids, convalescents and the aged, enjoy Toddy-milk beverage. A hot beverage promotes relaxation; "a hot Toddy" before retiring is an aid to restful sleep.

F. C. B. BRAND GOLDEN SYRUP

Packer.—D. B. Scully Syrup Company, Chicago.

Distributor.—F. C. Brown Company, Chicago.

Description.—A table syrup; a corn syrup flavored with refiners' syrup.

Manufacture, Analysis, Calories, Claims of Manufacturer.—See these sections for Banner Blue Corn Syrup with Cane Flavor (THE JOURNAL, March 5, 1932, p. 1817).

BONELESS PEELED PORTOLA SARDINES

(In Pure Olive Oil)

Manufacturer.—K. Hovden Company, Monterey, Calif.

Description.—Cooked, peeled and boneless Pilchard sardines (Clupea caeruleus, blue sardines) packed in olive oil in tins.

Manufacture.—Large Pilchard sardines are harvested as described for Portola Sardines (Pilchards) (THE JOURNAL, June 4, 1932, p. 1991). Immediately after being landed they are spread on tables, eviscerated and placed in a light brine for fifteen minutes to extract the blood, after which they go over a draper drier for sixty minutes for drying with hot air until the tails become brittle and the skin fairly dry. The skin is taken off; the belly portion is cut with scissors so as to permit the backbone to be pulled out with all the ribs. The fish at this stage are in two halves, which are trimmed down to the right size and placed in cans; olive oil is added. The cans are sealed and processed under the control of the California State Board of Health as to temperature and time.

Analysis, Calories and Claims of Manufacturer.—See these sections for Portola Sardines (Pilchards).

STROEHMANN'S KEW BEE BREAD

Manufacturer.—Stroehmann Brothers Company, Williamsport, Pa.

Description.—A white bread made by the sponge dough method (method described in THE JOURNAL, March 5, 1932, page 817); prepared from patent flour, water, yeast, lard, a yeast food containing ammonium chloride, sodium chloride, potassium bromate and calcium sulphate, salt, sucrose, lard, sweetened condensed skim milk, dextrose, and skim milk.

Analysis (submitted by manufacturer).—

	per cent
Moisture (entire loaf)	37.5
Ash	0.8
Fat (ether extraction method)	0.7
Protein (N × 6.25)	8.8
Crude fiber	0.2
Carbohydrates other than crude fiber (by difference)	52.0

Calories.—2.5 per gram; 71 per ounce.

Claims of Manufacturer.—A bread of good quality.

REPORTS OF THE COMMITTEE

THE COMMITTEE HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT.

RAYMOND HERTWIG, Secretary.

HOLSUM MILK BREAD SLICED AND UNSLICED NOT ACCEPTABLE

The Miller-Patton Baking Company, Rockford, Ill., submitted to the Committee on Foods a white bread called "Holsum Milk Bread." Prepared from flour, water, skim milk, sugar, salt, yeast, lard, butter, malt syrup, and a yeast food containing calcium sulphate, ammonium chloride, sodium chloride and potassium bromate.

Analysis (submitted by manufacturer).—

	per cent
Moisture (entire loaf)	35.1
Ash	2.0
Fat	2.6
Protein (N × 6.25)	10.0
Crude fiber	0.3
Carbohydrates other than crude fiber (by difference)	50.0

Discussion of Name and Label.—The name "Milk Bread" defines this bread as conforming to the United States Department of Agriculture definition and standard, which in part stipulates that "Milk bread is the product . . . obtained by baking a leavened and kneaded mixture of flour, salt, yeast and milk or its equivalent (milk solids and water in the proportions normal to milk) . . ." The label statement "Conforms to United States Department of Agriculture Standard" further emphasizes this fact. The name "Milk Bread" for this bread is false and misleading, and especially so in view of the statement of conformity to the government standard, for the reasons that the dry skim milk and butter ingredients of the baking formula are not in sufficient quantities to be equivalent to the milk solids necessary for making the bread a "milk bread" and that the dry skim milk and butter are proportioned so that the mixture is equivalent to skim milk only and not to whole milk. The bread therefore contains skim milk instead of whole milk and the skim milk solids content is much lower than the whole milk solids of a true "milk bread." The label guarantees the bread to contain "milk" and "malt," which is incorrect in that "skim milk" and "malt extract" are ingredients. The name and the two label statements are inappropriate for the bread, are misinformative and are misleading.

The manufacturer when informed of these opinions expressed himself as unwilling to change the name and incorrect label statements in accordance with the Committee's recommendations. This bread therefore cannot be listed among the Committee's accepted foods.

"PLEZOL POTATO BREAD" NOT ACCEPTABLE

The Frank Baker Bread Company, Lima, Ohio, submitted to the Committee on Foods a white bread called "Plezol Potato Bread." Prepared by the sponge dough method from patent flour, water, yeast, yeast food containing calcium sulphate, ammonium chloride, sodium chloride and potassium bromate, potato ferment containing potatoes, yeast and wheat flour, salt, sugar, lard, sweetened condensed skim milk and malt syrup.

Analysis (submitted by manufacturer).—

	per cent
Moisture	36.4
Ash	1.9
Fat	1.8
Protein (N × 6.25)	9.9
Crude fiber	0.3
Carbohydrates other than crude fiber (by difference)	49.8

Discussion of Name.—The United States Department of Agriculture definition and standard for "white bread" allows for the replacement of not more than 3 per cent of the flour ingredient by some other farinaceous material. The formula submitted for this "Potato Bread" brings it within the terms of the definition for "white bread." The bread has no physical, flavor or nutritional characteristics differing essentially from the usual white bread or suggestive of a bread warranting the name "potato bread." The name is considered inappropriate for the bread, misinformative and misleading.

The manufacturer when informed of this opinion expressed himself as unwilling to change the name in accordance with the Committee's recommendations. This bread therefore cannot be listed among the Committee's "accepted" foods.

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SATURDAY, JUNE 18, 1932

THE SIGNIFICANCE OF TUBERCULIN TESTS

Tuberculin tests have been used in man principally (1) for detecting tuberculous infection in early childhood and for investigating its spread among the children of tuberculous households, (2) as an aid to the physician in the diagnosis of tuberculosis in individual cases, (3) to estimate the prognosis in cases of tuberculosis, and (4) to estimate the distribution of tuberculous infection in communities in different parts of the world. The last mentioned purpose is of fundamental importance in considering the epidemiology of this disease.

The small use that is made of the tuberculin test may be due to misconception of its value in the diagnosis of clinical tuberculosis. Thus it is still commonly believed that the diagnostic applications of the test are confined to early life. This belief is no doubt correct with regard to the positive diagnosis of clinical tuberculosis. A negative reaction excludes this disease with almost equal accuracy at all ages, however, provided the proper method is used and suitable doses are employed. A positive reaction has its chief clinical value in infancy, when, from direct observation, tuberculous infection is more likely than at other ages to be associated with or to progress into active tuberculosis. The earlier the age, the worse the prognosis is. Unfavorable home conditions appear to affect the outlook adversely. The detection of tuberculin sensitivity in infants must, however, be taken only as contributory evidence of the presence of tuberculosis. The mortality among these infants under the present condition of living appears from recent work to be lower than it was formerly believed, indicating that control and arrest of infection are possible. An infant under the age of 2 years with a positive reaction but without symptoms should be kept under observation for some time on account of the possible development of clinical tuberculosis.

A positive reaction in a child, from 2 to 5 years old, with persistent symptoms, should suggest that they are tuberculous in origin. In patients over 5, a positive reaction to a qualitative test does not prove that clinical tuberculosis is present even in a suggestive case. In patients over 5, the positive reaction has its principal value when elicited by quantitative intracutaneous tests with weak solutions of tuberculin. Hence a positive reaction has a limited value in the diagnosis of clinical tuberculosis except in early life. The usefulness of the tuberculin test in diagnosis must therefore come mainly from a negative response, so far as concerns exclusion of the disease. At present the tuberculin test is little used for this purpose because of the erroneous beliefs that a negative test may be obtained in patients with positive evidence of infection, and that either a positive or a negative reaction is of value only in early life. That these beliefs are unwarranted is shown by a recent investigation of Hart,[1] in London. One of the subjects of this investigation was to find the error of a negative intracutaneous reaction in excluding clinical tuberculosis and to determine how this varies with the type and stage of the disease, the age of the patient and the dose of tuberculin employed. A study was made of 1,030 clinically tuberculous patients of all ages, presenting the common types of the disease and every stage from early activity to the moribund state. The reaction of each patient in the series to 0.1 cc. of a 1:1,000 dilution (0.1 mg.) of tuberculin given intracutaneously was ascertained; 766 of these patients were tested with 0.1 cc. of a 1:10,000 dilution (0.01 mg.) and as many as 93 (12 per cent) gave a negative reaction with this dose. Of the 1,030 patients, 38 (3.7 per cent) failed to react to the 1:1,000 dilution. These 38 patients were then tested with 0.1 cc. of a 1:100 dilution (1 mg.) of tuberculin; a positive reaction was obtained in 10 cases, leaving 28 (2.75 per cent) negative. Of these 28 patients, 5 could not be tested further; the remaining 23 were tested with 0.1 cc. of 1:10 tuberculin (10 mg.), 4 of whom were positive and 19 negative. These 19 negative cases were finally tested with undiluted tuberculin 1:1 (10 mg.), which is the maximum intracutaneous dose, with the result that only one more patient gave a positive response. The final and minimal error of the test adjusted for the series was 2.2 per cent. These observations seem to indicate that a negative intracutaneous reaction to a 1:10,000 dilution of tuberculin or to the standard 1:1,000 dilution does not exclude clinical tuberculosis with certainty. A negative test with a 1:10 dilution excludes the disease with greater accuracy, the error of 2.3 per cent being close to the minimal error, 2.2 per cent. For these reasons there is no advantage in using solutions of tuberculin stronger than 1:10 for excluding clinical tuberculosis. Moreover, nonspecific effects of tuberculin become more definite with highly concentrated solutions.

Analysis of the 38 cases out of the 1,030 tested that were negative to a 1:1,000 dilution of tuberculin shows

1. Hart, P. D.: The Value of Tuberculin Tests in Man, Medical Research Council Special Report Series 164, London, 1932.

that these fall into certain groups: (1) advanced pulmonary tuberculosis with toxemia; (2) bone or joint tuberculosis with activity; (3) a few nontoxic cases of active pulmonary tuberculosis with positive sputum and a few active cases of bone or joint tuberculosis with definite roentgen evidence of the disease for whose failure to react no reason could be advanced, and (4) a few cases either quiescent or approaching quiescence, all but one of which were also negative to undiluted tuberculin.

As controls for the 1,030 cases of clinical tuberculosis, 751 persons who were clinically nontuberculous were employed. Seventy per cent of the controls aged from 11 to 20 gave positive reactions, and the figures were 95 per cent for the adults of the series. The percentage of the reactions thus rose evenly from birth to manhood. Atypical nonspecific reactions occurred in a few cases of the series investigated by Hart, but their rapid development to a maximum and their rapid subsidence helped to distinguish them from true tuberculin reactions. They usually reached their height during the first twenty-four hours and had completely disappeared by forty-eight hours, when tuberculin reactions are as a rule maximal. The only untoward effects of the intracutaneous tests observed in the series were a few instances of local vesiculation and slight systemic disturbance.

From his study of the epidemiologic applications of the tuberculin test, Hart attempted to show the relative importance of heredity and contagion in determining tuberculous infection. Children from tuberculous households, as shown by Hart's investigation of 118 children of this class, gave a much larger percentage of positive reactions to tuberculin than those whose homes were free of tuberculosis; moreover, the percentage was greater when the tuberculosis was active or open than when it was healed or closed. Children with tuberculous parents living in their homes were more frequently found to react positively than those whose tuberculous relatives visited them occasionally. All these observations seem to be satisfactorily explained by variation in frequency, intimacy and duration of contact without recourse to a belief in hereditary predisposition to infection. The percentage of tuberculin reactions among children exposed in tuberculous households to parents, brothers or sisters with nonpulmonary tuberculosis appears to be no higher than among children in nontuberculous households, nor does it exceed the frequency of tuberculin reactions found among those who have no tuberculous relatives at all. Though the number of cases is small, the results suggest that a positive family history is of importance in determining infection, since it yields a potential intimate source of contagion. Infants separated from their tuberculous parents and placed in healthy families before infection has occurred appear no more likely to acquire the infection in early life than are infants of nontuberculous parents.

THE RÔLE OF ALCOHOL IN THE ETIOLOGY OF NEPHRITIS

Among the cherished traditions of propagandistic hygiene is the devastating effect of alcohol on the heart, blood vessels and kidneys, a view that still lingers in many medical treatises. Those pathologists who study the remains of an alcoholic clientele have generally failed to find in the wrecks of drunkards anatomic evidence that alcohol is a poison that selects the circulatory system for its attack, but rather the opposite. As for chronic nephritis, there seems to be more tradition than proof indicating that it results from chronic alcoholism. In the older literature, Senator maintained the relationship of alcohol to nephritis, quoting English authors who said that at least three fourths of all cases of chronic nephritis depend on alcoholism. More recently Herxheimer, Löhlein and Bertholet have supported the view of the etiologic importance of alcohol in nephritis. On the other hand, Cohnheim said that although the bodies of most inveterate drunkards exhibit chronic gastritis, meningeal opacity and hepatic lesions, they generally possess large, blood-rich kidneys of good appearance, an observation supported by Fahr, who affirms the lack of evidence of either vascular or renal changes from alcohol, and by Marchand, who noted that the arteries and arterioles of old alcoholic addicts often are splendidly free from sclerotic changes.

Wegelin [1] in Bern has recently made an interesting study of this subject, taking advantage of the fact that the population of this lovely Swiss city shows a remarkably high incidence of cirrhosis of the liver which reaches nearly 10 per cent of recent necropsies, as contrasted with German statistics indicating an incidence of from 1 to 3 per cent. In a series of 106 bodies exhibiting cirrhosis attributable to alcoholism, of which 91 were men and 15 women, he found 12 (11.3 per cent) showing more or less arteriosclerotic nephritis, in only one of which was the condition advanced. In only three bodies was the heart significantly hypertrophied. This amount of cardiorenal disease is certainly not more and apparently is less than would be found in a similar number of bodies of the same age range in which death had occurred from almost any condition. Most of the bodies showed, as described by Cohnheim, large, succulent, blood-rich kidneys, perhaps from functional hypertrophy. On the other hand, in forty-six cases of advanced interstitial nephritis, only five gave a history of excessive use of alcohol. Furthermore, whereas the cases of cirrhosis were chiefly in males (85 per cent), the cases of chronic nephritis in the same necropsy material were nearly equally divided between the sexes (52 per cent males), again indicating the lack of correlation between alcoholism and chronic nephritis.

Our hygiene in the past would seem to have been more a moral hygiene than a scientific one. In a pre-

1. Wegelin, C.: Schrumpfniere und Alkoholismus, Schweiz. med. Wchnschr. 61: 1181 (Dec. 5) 1931.

vious generation, a health angle was sought for the promotion of various ascetic doctrines. Our present generation seeks health angles for the continuation of smoking, drinking, chewing gum, and similar pleasures. The pendulum of popular thought prefers the extremes of its travels.

HUMAN PARASITOLOGY IN THE NORTHERN STATES

In certain states that border on the Great Lakes, it is said that there are nine months of winter and three months of poor skiing. On first thought it would seem remarkable that some of the principal contributions to knowledge of human parasitology in the United States should have come from these states. Early progress in parasitic diseases has associated them with the tropics and the subtropics, not with regions where it would seem that microscopic life might find survival difficult. Nevertheless, nearly a quarter of a century ago THE JOURNAL began to point out that amebiasis was a disease of northern as well as of southern parts of this country. In a recent issue has appeared an article by Craig [1] in which he awards to Sistrunk an honor long overlooked by the medical profession as a whole; namely, that of reporting in 1911 that, of twenty-five patients seen at the Mayo Clinic who were infected with Endamoeba histolytica, twelve had never resided elsewhere than in northwestern states. Sistrunk had gone to Minnesota from Louisiana. He knew amebiasis, both as a pathologist and as an internist, and his contribution was the start of what might be called propaganda to make physicians conscious that amebiasis is a hazard to health throughout the United States. His studies were followed by those of other investigators in Minnesota, namely, Giffin and Sanford; and ten years later P. W. Brown was still carrying on the work. Now Craig estimates that "the evidence is certainly sufficient to warrant us in stating that 1 per cent of the population, or 1,200,000, are harboring Endamoeba histolytica in this country."

Another problem in parasitology, that of infestation with Diphyllobothrium latum, is predominantly a northern one and has been brought to the fore by residents of the northern part of the Mississippi Valley. Of these, Nickerson, Magath [2] and Essex of Minnesota, and Warthin, Levy, Pierson and Vergeer of Michigan, are prominent. Articles in THE JOURNAL have made the fact widely known that Diphyllobothrium latum is a serious matter to the population about fresh water lakes in the north central part of this country. Although the disease apparently was introduced by Finlanders, many cases have been reported among natives of the United States, and Magath has shown that the life cycle of the parasite is completed in this country. The most thorough study of Diphyllobothrium anemia ever made was recently completed by Birkeland, [3] who resided in Minnesota when he did his work. Moreover, studies now under way to determine the incidence of infestation of fish in the winter are being made by Bajkov of the Biological Survey of Canada, who is capturing his material from under the ice.

Thus, physicians and health officers who work north of Chicago have their problems in parasitology as well as those whose homes lie to the south. Although the picture of the white clad parasitologist in his tropical bungalow will persist, it must be supplemented by that of his fur-clad colleague, directing surveys from headquarters almost buried in snow.

1. Craig, C. F.: The Amebiasis Problem, J. A. M. A. **98**: 1615 (May 7) 1932.
2. Magath, T. B.: Experimental Studies on Diphyllobothrium Latum, Am. J. Trop. Med. **9**: 17 (Jan.) 1929.
3. Birkeland, I. W.: Bothriocephalus Anemia: Diphyllobothrium Latum and Pernicious Anemia, Medicine **11**: 1 (Feb.) 1932.

Current Comment

ROENTGEN THERAPY IN POLIOMYELITIS

The use of the roentgen ray as an adjuvant in the treatment of poliomyelitis has been strongly recommended by a number of French clinicians. Other Europeans have doubted its value. In the absence of pertinent experimental evidence for or against such therapy, Lenz and Jungeblut [1] of Columbia University have recently tested the effects of x-rays on experimentally infected monkeys, with a parallel study of in vitro effects on the poliomyelitis virus. Briefly, they conclude that "monkeys suffering from the experimental infection and treated either during the incubation period or with manifest paralytic symptoms furnish no evidence suggesting any benefit from roentgen therapy. . . . Exposure to x-rays failed to destroy or markedly attenuate the virus in vitro." The Columbia University investigators, however, emphasize the obvious differences in virulence and mortality between human poliomyelitis and experimental poliomyelitis in monkeys, and refrain from drawing any final conclusion as to the bearing of their data on human therapy.

IRON RETENTION DURING GROWTH

There are about 3 Gm. of iron in the body. Although all cells contain a small amount of iron in their nuclei, most of this element is found in the hemoglobin molecule and is therefore found in the blood, muscle, liver, spleen and bone marrow. The iron store in the newborn is not large but there is rapid accumulation of this element in the young under favorable dietary conditions. The ease with which nutritional anemia occurs in young experimental animals on rations poor in iron emphasizes the slender factor of safety provided early in development. It becomes of some importance, therefore, to determine the requirement for iron in the period of rapid accumulation. Leichsenring and Flor [1] have recently reported a study of four children varying in age from 35 to 56 months. On a daily iron intake of 3.25 mg. there was a small positive balance; with 6.5

1. Lenz, M., and Jungeblut, C. W.: Proc. Soc. Exper. Biol. & Med. **29**: 814 (April) 1932.
1. Leichsenring, J. M., and Flor, I. H.: J. Nutrition **5**: 141, 1932.

mg. the retention was more than doubled. Calculated from the excretion on the lower intake, the maintenance requirement was 2.1 mg. daily for the average body weight of 17 Kg., a value almost the same as that currently accepted for adults. The added retention of iron when the intake was increased indicates that growth increases the requirement, and the calculated allowance for this was 3.4 mg. If 50 per cent additional is allowed as a margin of safety, the total daily requirement was 8.23 mg., or, calculated on the basis of food ingested, 0.62 mg. per hundred calories. These data substantiate similar determinations of Rose and her co-workers,[2] according to which a total of 8.5 mg., or 0.76 mg. per hundred calories, is required for a growing child. These studies point to the exaggerated retention of this important inorganic element by young children and emphasize the need for attention to this phase of the food requirement.

Association News

MEDICAL BROADCAST FOR THE WEEK

American Medical Association Health Talks

The American Medical Association broadcasts on Monday and Wednesday from 1:30 to 1:35 p. m. over Station WBBM (770 kilocycles, or 389.4 meters). The Columbia chain program has been discontinued for the present.

The program for the week is as follows:

June 20. Flies Are Dangerous.
June 22. Vacation Time is Here.

There is also a fifteen minute talk sponsored by the Association on Saturday morning from 11:15 to 11:30 over Station WBBM.

The program for the week is as follows:

June 25. Diets.

This schedule is based on Chicago Daylight Saving Time, one hour faster than Central Standard Time.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ARKANSAS

Society News.—At a meeting of the Lawrence County Medical Society, May 10, the speakers were Drs. Cleo C. Ball, Ravenden, on hydrocephalus; Wright W. Hatcher, Imboden, tularemia, and Horace R. McCarroll, Walnut Ridge, episiotomy.——Drs. John L. McGehee, Memphis, and Thomas F. Hudson, Luxora, addressed the Mississippi County Medical Society, May 3, on "Present-Day Mortality Rate of Appendicitis" and "Malaria," respectively.——The Saline County Medical Society was addressed, May 12, by Major James M. Troutt, Hot Springs, on army and navy hospital procedures in dehydration treatment of head injuries, hand infections and diagnosis of appendicitis; Dr. Rolland F. Darnall, Little Rock, discussed "Mental Sickness."——A recent meeting of the Yell-Pope County Medical Society was addressed by Drs. Clarence B. Billingsley, Fort Smith, on "Preventive Pediatric Problems," and John H. Colay, Cleveland, "What Is Wrong with Our Medical Society."

2. Rose, Mary S.; Vahlteich, Ella M.; Robb, Elda, and Bloomfield, Emily M., J. Nutrition 3: 229 (Nov.) 1930.

GEORGIA

Dr. Elkin Honored.—Members of the Fulton County Medical Society gave a dinner, April 11, to Dr. William S. Elkin, Atlanta, in celebration of his completion of fifty years in the practice of medicine. The speakers included Drs. Frank K. Boland and William S. Goldsmith, both of Atlanta. Dr. Elkin is a charter member of the Fulton County Medical Society. He has been on the faculty of Emory University School of Medicine for forty-three years and was dean of the school from 1905 to 1925.

Portrait of Dr. Westmoreland.—An oil portrait of Dr. John G. Westmoreland, Atlanta, was recently presented to Emory University School of Medicine by Mrs. Julius L. DeGive, Atlanta, granddaughter of the physician. Dr. James L. Campbell, Atlanta, made the presentation address, and Dr. Russell H. Oppenheimer, Atlanta, gave the speech of acceptance on behalf of the university. According to an historical account of Atlanta Medical College, the institution was founded in 1854 "under the energetic leadership of Dr. John G. Westmoreland." This college is now known as Emory University School of Medicine. Dr. Westmoreland was professor of materia medica and therapeutics.

ILLINOIS

Poliomyelitis Serum.—Anticipating an increase in the prevalence of poliomyelitis during the next few months, the state department of public health has collected and is prepared to distribute to physicians on request human convalescent poliomyelitis serum. This serum is available free and can be had at any hour of the day or night. Limited supplies make it impracticable to provide physicians with the serum for anticipated needs, however, so that requests should be confined to immediate requirements. Reported cases up to June 4 this year, the department states, exceed those for the corresponding period in 1931.

Society News.—Drs. James P. Simonds and James T. Case, Chicago, conducted a clinical pathologic conference on colon obstructions before the Livingston County Medical Society, May 25, in Pontiac.——The St. Clair County Medical Society was addressed, June 2, by Drs. A. A. Werner on "Ovarian Hormones and Theelin"; Alphonse McMahon, St. Louis, "Structural Changes in Endocrine Disorders," and Charles H. Neilson, St. Louis, "Some Observations of Hyperthyroid States."——Dr. Percy E. Hopkins, Chicago, among others, addressed the Rock Island County Medical Society, Moline, May 11, on "Common Postoperative Complications and Their Treatment."——The Mercer County Medical Society was addressed, May 3, in Aledo, by Drs. Charles P. Blair, Monmouth, on "Fractures of the Neck and Femur," and Elmer G. Senty, Davenport, Iowa, "The Thyroid Problem."——Dr. Ralph M. Carter, Green Bay, Wis., addressed the Macon County Medical Society, Decatur, May 6, on "Fractures of the Femur."

Chicago

License Suspended.—The Illinois State Department of Registration and Education suspended for one year the license of Dr. Joseph Thomas Duffy, June 2. This physician, whose license was issued, Aug. 3, 1925, is now on trial as codefendant with Tilton, the "cancer specialist," for conspiracy to violate the medical practice act.

Society News.—The Chicago Society of Allergy was addressed at its May meeting by H. W. Cromwell, Sc.D., and Marjorie D. Moore, Ph.D., on "Rabbit Skin Tests with Pollen Extracts," and O. C. Durham, "Classification and Identification of Hay Fever Pollens."——At the meeting of the Chicago Gynecological Society, June 17, the speakers were Drs. Edward D. Allen on "Irregularity of the Menstrual Function"; Edward L. Cornell and Abraham F. Lash, "A Clinical Study of Abdominal Pregnancy," and William J. Dieckmann and Morris Edward Davis, preliminary report on "Volumetric Determination of Amniotic Fluid with Congo Red."——The Medical Research Club of the University of Illinois was addressed, June 2, by William C. Rose, Ph.D., Urbana, Ill., on "A Search for a New Protein Component Essential for Life."

In Memory of Dr. Gilmer.—Two bronze tablets commemorating the work of the late Dr. Thomas L. Gilmer were dedicated, June 7, in Gilmer Hall of the Montgomery Ward Memorial Building, Northwestern University. One tablet records the medical service of the Gilmer family through five generations from 1731 to 1931, the Chicago *Tribune* reports, and the other records the life of Dr. Gilmer. The exercises were conducted by the department of oral surgery, of which Dr. Herbert A. Potts is head. Dr. Gilmer was chairman of the group that

founded the Northwestern University Dental School in 1891. He was professor of oral surgery in the dental school for forty years and was dean from 1916 to 1918. He was the author of a book on oral surgery and many papers on dental education, oral surgery and bacteriology, including a classic treatise on jaw fractures. Dr. Gilmer died, Dec. 28, 1931.

Capps Prize Made Annual Award.—The Joseph A. Capps Prize of $500 will henceforth be awarded annually instead of on alternate years, as originally stipulated by the anonymous donor who established the prize in 1931. This decision was made at the request of the donor because of the general excellence of the papers presented by the twelve contestants for the first award of the prize this year. The original plan was to give the prize one year and to sponsor a lecture the second year. Manuscripts for the second Joseph A. Capps Prize must be submitted to the secretary of the Institute of Medicine of Chicago, 122 South Michigan Avenue, not later than December 31. Competition is open to graduates of Chicago medical schools who have received the degree of doctor of medicine during the year 1930 or thereafter. The prize is awarded for the most meritorious investigation in medicine or in the specialties of medicine. The investigation may be also in the fundamental sciences, provided the work has a definite bearing on some medical problem. The winner of the prize will be expected to present the result of his investigation before the institute at some meeting in 1933, the time to be designated later. The first Joseph A. Capps Prize was awarded to Dr. Warren B. Matthews, assistant resident in surgery at the University of Chicago Clinics, for his paper on "Studies on the Etiology of Gastric and Duodenal Ulcer."

INDIANA

County Secretaries Meet.—Veterans' hospitalization, county medical societies and township poor relief work were included among the topics discussed at the annual conference of secretaries of county medical societies of the Indiana State Medical Association, May 25. Among the speakers were Drs. Franklin S. Crockett, La Fayette, president, state medical society; Joseph H. Weinstein, Terre Haute, president-elect; John C. Burkle, La Fayette; James B. Maple, Sullivan, William H. Kennedy and Chester A. Stayton, both of Indianapolis. The state association gave a dinner to the secretaries in the evening; this session was addressed by Thomas O'Mara, Terre Haute, on "Economics in the Practice of Medicine." Dr. Albert M. Mitchell, Terre Haute, was reelected chairman of the county secretaries' group and Dr. Wilson T. Lawson, Danville, reelected secretary. Dr. Lawson is said to have held his office for fifty years.

Society News.—The Carroll County Medical Society was addressed at Flora, May 13, by Drs. Homer H. Wheeler and William F. King, Indianapolis, on "Gastro-Intestinal and Rectal Diseases."——Dr. Oscar E. Nadeau, Chicago, addressed the Wayne-Union Counties Medical Society, May 12, at Richmond, on hematuria.——Among others, Dr. Ralph G. Carothers, Cincinnati, addressed the Eleventh Councilor District Medical Association, May 18, at Marion, on "Fractures of the Lower Part of the Leg and Ankle."——Albert Stump, Indianapolis, addressed the Wabash County Medical Society in North Manchester, June 2, on "Legal Problems and the Care of the Poor."——The Marshall County Medical Society heard an address on "Diagnosis and Treatment of Peptic Ulcer," June 1, in Kokomo, given by Dr. Harry Knott, Plymouth.——At a meeting of the Twelfth District Medical Society and the Northeastern Indiana Academy of Medicine at Kendallville, May 26, Dr. Willis D. Gatch, Indianapolis, spoke on "Heredity as a Factor in Disease," and Dr. Franklin S. Crockett, La Fayette, "Medical Economics."

IOWA

Annual Meeting at Twin Lakes.—The Twin Lakes District Medical Society conducted its tenth annual dry diagnostic clinics at Twin Lakes, Rockwell City, June 16. Dr. Owen H. Wangensteen, professor and head of the department of surgery, University of Minnesota School of Medicine, held a clinic in general surgery; Dr. Robert D. Mussey, professor of obstetrics and gynecology, University of Minnesota Graduate School of Medicine, Rochester, Minn., in obstetrics; Dr. Russell M. Wilder, professor of medicine, Mayo Clinic, Rochester, in medicine, and Dr. Ralph C. Hamill, associate professor of nervous and mental diseases, Northwestern University Medical School, Chicago, in neurology. Speakers on the program included Drs. Rosco G. Leland, director, Bureau of Medical Economics, American Medical Association, Chicago, "Current Trends in Medical Practice," and Ray M. Balyeat, assistant professor of medicine, University of Oklahoma School of Medicine, Oklahoma City, "Allergic Diseases: Diagnosis and Treatment." The Twin Lakes District Medical Society is composed of the county medical societies of Calhoun, Carroll, Greene, Hamilton, Humboldt, Ida, Sac, Kossuth, Pocahontas, Webster and Wright, which are affiliated for graduate clinical instruction.

KENTUCKY

Cancer Clinic Opened.—A free clinic for the diagnosis of cancer, to be conducted for one hour each week, was opened, May 19, at St. Joseph's Infirmary, Louisville, under the direction of Dr. Irvin Abell. All patients will be referred back to their family physicians, who will arrange for their care. No charge will be made for the diagnostic service, regardless of the economic status of the patient. Twenty-four physicians will assist Dr. Abell. This is the second clinic of its kind in Louisville, the first having been opened in January at Norton Memorial Infirmary (THE JOURNAL, February 6, p. 486).

Annual Graduate Course.—The Kentucky State Medical Association Summer Post-Graduate Course was held at the City Hospital, Louisville, June 6-18. The following speakers, among others, addressed the visiting physicians, Monday, June 6: Drs. John P. Henry, Memphis, Tenn., "Allergy in Theory and Practice"; Victor V. Anderson, New York, "Recent Developments in Psychiatry"; Charles N. Kavanaugh, Lexington, "Tularemia, with Report of 120 Cases" and Marshall G. Seibel, St. Louis, "Tumors of the Islands of Langerhans and Hypoglycemia." Demonstrations in a wide variety of subjects were presented by Louisville physicians during the remainder of the two weeks. Dr. Charles W. Hibbitt was chairman of the committee that arranged the course.

Public Health Courses.—The University of Kentucky, Lexington, in cooperation with the state board of health, is offering a number of special courses in public health during the summer session, June 14-July 16. Two courses, one on epidemiology and communicable diseases and one on public health administration, are given only for health officers under the direction of Dr. Allen W. Freeman, professor of public health administration, Johns Hopkins University School of Hygiene and Public Health, Baltimore. Dr. John S. Chambers, professor of hygiene and public health at the university, is conducting a course in health education and health supervision of schools. Other courses offered include personal and community health, public health, maternal and child health, tuberculosis and tuberculosis control and public health nursing. Dr. Arthur T. McCormack, state health officer, Louisville, and other members of the staff of the state board of health will be special lecturers.

Society News.—Dr. William R. Davidson, Evansville, Ind., among others, addressed the Christian County Medical Society, Hopkinsville, May 24, on "Treatment of Fractures from the Standpoint of the General Practitioner."——Dr. Charles N. Kavanaugh, Lexington, addressed the Bourbon County Medical Society, Paris, May 19, on "Clinical Considerations of Secondary Anemia."——Drs. Sydney E. Johnson and Aura J. Miller, Louisville, addressed the Harlan County Medical Society, Harlan, May 21, on disorders of the thyroid gland.——Dr. Virgil L. Powell, Paducah, was elected president of the Southwestern Kentucky Medical Association at the recent annual meeting, and Dr. Thomas T. Marshall, Paducah, secretary.——Dr. Robert H. Cowley, Berea, was elected president of the Eye, Ear, Nose and Throat Section of the Kentucky State Medical Society at its twelfth annual meeting in Louisville, May 17. Dr. William Thornwall Davis, Washington, D. C., was the guest of honor at the meeting, reading a paper on treatment of strabismus. The next annual session of the section, which holds meetings separate from those of the state society, will be in Paducah.——The Muldraugh Hill Medical Society was addressed at Elizabethtown, April 14, among others, by Dr. William Allen Pusey, Chicago, on "Our Changing Knowledge of Eczema."

LOUISIANA

Quarantine Station Formally Opened.—The U. S. Quarantine Station at Algiers was formally opened during the recent annual session of the American Medical Association in New Orleans, although it has been in operation since last fall. The Algiers station is one of the largest and most modern quarantine stations in the world; it was constructed from a congressional appropriation of $600,000. It has already begun to function in place of quarantine facilities at three other points in the port, and eventually, it was stated, may replace the present boarding station near the mouth of the Mississippi River if a twenty-four hour boarding service is inaugurated

at the new station. This unit comprises nineteen buildings of colonial design, including a hospital, detention house, homes for the officer in charge and other attendants, servants' quarters, and garages. It is said that the first quarantine station was established in Louisiana by Governor W. C. C. Claiborne in 1810 for the purpose of protecting the city against yellow fever. In 1825 this station, which was sixteen miles below New Orleans, was abolished by an act of the legislature, which also abolished the state board of health. A new law in 1855 provided for a station not less than seventy miles below the city. In 1888 it was moved down to the present location of the old station twenty-one miles farther down the river. In 1907, an act of Congress transferred the jurisdiction of this station from the state to the U. S. Health and Marine Hospital Service. Surg. Tully J. Liddell is the officer in charge of the new station.

MARYLAND

Portraits of Drs. Lewis and Young.—Portraits of Dr. Dean DeWitt Lewis, professor of surgery, and Dr. Hugh Hampton Young, clinical professor of urology, Johns Hopkins University School of Medicine, Baltimore, were presented to the university, June 14, at the annual commencement exercises. Both are gifts of colleagues, friends and former students of the physicians. Drs. Lewellys F. Barker, professor emeritus of medicine, and John M. T. Finney, professor of clinical surgery at the school, presented the portraits. Dr. Lewis is President-Elect of the American Medical Association.

Conference on Juvenile Delinquency.—Gov. Albert C. Ritchie recently called a conference on juvenile delinquency, which was held under the auspices of the Maryland League of Women Voters in Baltimore, May 17. Dr. James S. Plant of the Essex County (New Jersey) Juvenile Court discussed "Juvenile Delinquency." Other speakers were Drs. John Collinson, Jr., bureau of vital statistics of the state department of health; George H. Preston, commissioner of mental hygiene of Maryland, and Jacob W. Bird, chairman, Montgomery County Juvenile Court Committee, Rockville. Dr. Collinson and Dr. Preston discussed physical and mental examinations of children in the counties, and Dr. Bird, the establishment of a juvenile court in Montgomery County.

MICHIGAN

Portrait of Dr. Huber.—Dr. G. Carl Huber, professor of anatomy, director of the anatomic laboratories and dean of the Graduate School of the University of Michigan, Ann Arbor, was honored, May 16, by the students, friends and colleagues, when a portrait in oil of Dr. Huber was presented to the university. Dr. Frederick G. Novy, director of the Hygienic Laboratory at the university, made the presentation on behalf of the donors.

Dr. Parker Honored.—A dinner was given to Dr. Walter R. Parker by his friends and colleagues, May 24, on the occasion of his retirement as professor of ophthalmology in the University of Michigan Medical School, Ann Arbor. Dr. Parker, who has held the position for twenty-seven years, will be succeeded by Dr. George Slocum, his assistant for many years. In 1917 Dr. Parker received the Knapp Medal, which is awarded by the Section on Ophthalmology of the American Medical Association, for a paper on "The Relation of Choked Disk to the Tension of the Eyeball." Dr. Frederick G. Novy presided as toastmaster at the dinner, and Alexander G. Ruthven, Ph.D., president of the university, made the opening remarks. Dr. Parker's retirement is effective, July 1.

Survey of Medical Facilities.—A survey of medical service and health agencies will be carried on in Michigan under the direction of a committee of which Dr. W. H. Marshall is chairman, according to the *Journal of the Michigan State Medical Society* for May. It is hoped that through the facts presented the profession may be guided in the adoption of a definite policy concerning the social and economic aspects of medical care. Each county society will appoint a committee on public relations, which will supply certain information and expedite local reports. In the collection of data, detailed schedules will be sent to physicians, hospitals and laboratories. Special studies will cover the economic structure of population, health agencies, industrial service, welfare service, tuberculosis and mental diseases. Miscellaneous studies will be made on workmen's compensation, contract practice, medical society activities, patients discharged from hospitals, and other experiments in solving the economic problem. In the analysis of these data, an effort will be made to determine the distribution of physicians, their professional training, the extent of specialization and the gross cash incomes. Hospital data will be analyzed to indicate, among other things, the distribution and ownership, growth of facilities, type of bed capacities, occupancy and financial status. A somewhat similar analysis will be used for the laboratories. This study of medical facilities is being made in accordance with action taken at the 1931 annual meeting of the Michigan State Medical Society and at a subsequent meeting of the house of delegates. Nathan Sinai, Ph.D., acting director, School of Hygiene and Public Health, University of Michigan Medical School, Ann Arbor, will be the director of the study. Other members of the committee are Drs. Fred A. Baker, Pontiac; Leo G. Christian, Lansing; Bert U. Estabrook, Detroit; Clarence S. Gorsline, Battle Creek, and Frederick C. Warnshuis, Grand Rapids, secretary ex officio.

MINNESOTA

State Medical Election.—Dr. Naboth O. Pearce, Minneapolis, was elected president of the Minnesota State Medical Association at the annual meeting, May 23, to take office, January 1. Dr. Edward A. Meyerding, St. Paul, was reelected secretary.

Violator of Basic Science Law.—John Hettwer, 64 years old, Minneapolis, pleaded guilty to a charge of practicing medicine without a license at Hastings, May 2, and was sentenced to nine months in the Dakota County Jail. Hettwer was arrested on the complaint that he had treated a woman for goiter. Hettwer was born in Germany, coming to this country in 1914. He admitted to the court that he practiced a little at Melrose and also at St. Cloud. This is the first prosecution instituted by the medical board in Dakota County since the passage of the Basic Science Law.

MISSOURI

Annual Spring Clinics.—The St. Joseph Clinical Society, St. Joseph, conducted its annual spring clinics, April 20-21, with sessions at the Hotel Robidoux, Missouri Methodist Hospital and St. Joseph's Hospital. The guest speakers included Drs. Vilray P. Blair, St. Louis, on "Repair Surgery"; Edward J. Stieglitz, Chicago, "Nephritis in Pregnancy"; Virgil S. Counseller, Rochester, Minn., "Surgical Significance of the Fascia and Ligaments of the Pelvic Floor and Their Relationship to the Development of Cystocele and Pelvic Relaxation," and Arthur Steindler, Iowa City, Iowa, "Ischemic Contractures of the Forearm." The program consisted of addresses, clinics and round table discussions. Members of the Northwest District Dental Society of Missouri were guests of the clinical society at the banquet.

NEW YORK

Smallpox in Plattsburg.—An outbreak of forty-seven cases of smallpox in Plattsburg and adjacent towns was recently reported in *Health News*. The source of the outbreak was traced to Burlington, Vt., where a Plattsburg family came in contact with a case while on a visit. Four members of the family became ill with smallpox after their return home and the disease spread in Plattsburg and to other villages by easily traced contacts. The health authorities immediately took measures to suppress the epidemic, and a total of 13,819 vaccinations were reported from Clinton County from October 1 to December 31. In Essex County, where some cases were also traced to Plattsburg sources, 5,681 vaccinations were performed. The date of onset of the last reported case was Nov. 24, 1931.

Dust, Smoke and Gas Nuisances.—The division of sanitation of the state department of health has recently reported to Governor Roosevelt, after an investigation of several months, the existence of a dust, smoke and gas nuisance from industrial plants on the New Jersey shore, menacing the health and safety of residents of Staten Island. Twenty-six plants in New Jersey and six on Staten Island were investigated. They were principally engaged in the refining and storage of petroleum products, manufacture of chemicals, dyes, paints and fertilizers and the smelting and refining of ores. Smoke, gases, fumes and vapors from many of these contain harmful dusts, acids and compounds of sulphur which when the wind blows toward Staten Island constitute a nuisance or menace to the health of residents of the island. Two plants were said to be principally responsible for the conditions, according to the report, others contributing only infrequently or to so limited an extent that the occurrence could not be considered a nuisance or menace to health. From the weather bureau it was ascertained that the wind blows from the direction of the offending plants about 67 per cent of the time. It was reported that one of these plants was making changes which, when completed, might result in the abatement of the objectionable conditions. Some plants were said not to be contributing to the nuisance at present because of reduced or curtailed opera-

tion. It is possible, the report said, that these may expand or resume operations to such an extent as to create a public nuisance on Staten Island.

New York City

Salmon Lecturer.—Dr. William L. Russell, professor of psychiatry, Cornell University Medical College, has been selected to give the Thomas W. Salmon Memorial Lectures for 1933. Dr. Adolf Meyer, Baltimore, recently delivered the first series of these lectures, established in January, 1931, in memory of Dr. Salmon, professor of psychiatry at Columbia University College of Physicians and Surgeons.

Personal.—Drs. Lee M. Hurd, professor of laryngology, and John McCoy, clinical professor of laryngology, New York University and Bellevue Hospital, retire from active duty and become emeritus professors at the end of the current year. ——Dr. William Seaman Bainbridge has been appointed an official delegate to the second session of lectures of the International Bureau of Documentation on Military Medicine, to be held at Liége, Belgium, June 23-25.

Mrs. Biggs' Bequests.—The late Mrs. Frances R. Biggs, widow of the late Dr. Hermann M. Biggs, bequeathed $100,000 to New York University to increase the funds for the Hermann Michael Biggs professorship of preventive medicine, $35,000 to the Henry Street Settlement for the Hermann and Frances Biggs tuberculosis visiting nurse fund and $1,000 to the New York Tuberculosis and Health Association. A portrait of Dr. Biggs was presented to the Academy of Medicine.

Social Agencies in New York.—More than 1,000 social service, health and relief agencies are listed in a new directory issued June 1 by the Charity Organization Society in cooperation with the Welfare Council and twenty other organizations. More than 500 render service to families; 480 are engaged in child welfare; 300 provide health services or health education and 415 are in the field of education, recreation or neighborhood activities, many being engaged in several or all these major activities.

The Graduate Fortnight at the Academy.—Tumors, benign and malignant, will be the theme of the 1932 Graduate Fortnight of the New York Academy of Medicine, October 17-28, it is announced. Thirty afternoon clinical meetings and demonstrations have been arranged in eighteen hospitals and ten evening meetings will be held, during which tumor growths will be discussed. Among the speakers will be Drs. W. Gordon M. Byers, Montreal, Que.; Edwin Beer, Charles A. Elsberg and James Ewing, New York; Donald C. Balfour, Rochester, Minn.; Daniel F. Jones, Boston; Dean Lewis, Baltimore, and Francis Carter Wood, New York. Concurrent with the fortnight and for a week afterward there will be an exhibition of anatomic specimens, with lecture demonstrations at regular intervals. The medical profession of the country is invited to attend and participate. There is no charge for attendance, but registration is necessary for the hospital demonstration clinics. Programs and registration blanks may be obtained from the New York Academy of Medicine, 2 East One Hundred and Third Street.

NORTH DAKOTA

State Medical Meeting and Election.—Dr. Jesse W. Bowen, Dickinson, was chosen president-elect of the North Dakota State Medical Association at the annual session in Grand Forks, June 1 and 2. Other officers elected were Drs. Clyde E. Stackhouse, Bismarck, and Archibald D. McCannel, Minot, vice presidents, and Albert W. Skelsey, Fargo, secretary, reelected. Dr. Paul H. Burton, Fargo, was inducted into the presidency. Valley City was selected for the 1933 meeting place. Guest speakers listed on the program included the following:

Dr. Roscoe C. Webb, Minneapolis, "Drainage in Appendicitis."
Dr. Harry F. Bayard, Minneapolis, "Etiology, Course and Treatment of Anal Pruritus."
Dr. Russell M. Wilder, Rochester, Minn., "Ten Years' Experience with Insulin."
Dr. Owen H. Wangensteen, Minneapolis, "Recognition and Treatment of Pulmonary Suppuration."
Dr. Henry W. Cook, Minneapolis, "Relationship of Clinical and Insurance Medicine."
Dr. Hugo O. Altnow, Minneapolis, "Diseases of the Blood."
Dr. Arthur W. Ide, St. Paul, "Internal Injuries Involving Internal Organs."
Dr. Charles B. Wright, Minneapolis, "Veterans' Legislation."

The North Dakota Academy of Ophthalmology and Otolaryngology met in conjunction with the association with Drs. Axel Oftedal, Fargo, and Henry E. Binger, St. Paul, as the speakers, on mastoiditis.

OHIO

Student Prizes at Western Reserve.—Norman Reider, Canton, Ohio, student in the department of anatomy, Western Reserve University School of Medicine, Cleveland, has been awarded the Dr. Herbert S. Steuer Prize for Work in Anatomy for investigations on the evolution of the primate colon and the relation to the human colon. The senior prize in obstetrics, the gift of Dr. Edwin C. Garvin, was awarded to Miss Elizabeth S. Hutchinson, Cleveland, as the member of her class who showed the best theoretical and practical knowledge of the subject.

Society News.—Drs. Maurice I. Miller, Troy, and Herbert R. Pearson, West Milton, addressed the Miami County Medical Society, at West Milton, May 13, on toxemias of pregnancy and traumatic surgery, respectively.——Drs. Myron Metzenbaum and Raymond C. McKay, Cleveland, addressed the Stark County Medical Society at Alliance, May 25, on "Nasal Reconstruction and Reconstructive Surgery" and "Results of Compression Methods of Treatment of Pulmonary Tuberculosis," respectively.——The Summit County Medical Society, in association with the Summit County Dental Society and the Medical Bureau of Akron, is publishing a twenty-four-page bulletin called the *Medical Arts Journal*.——Drs. Charles Anderson Aldrich, Winnetka, Ill., and Henry J. Gerstenberger addressed the Academy of Medicine of Cleveland, May 20, on "Science and Art in Child Nourishment" and "Radiant Energy—Its Use in General Practice," respectively. ——Dr. Justin M. Waugh, Cleveland, gave an address before the Portage County Medical Society, Ravenna, May 5, on "Diseases of the Esophagus."——George R. Effler, attorney, addressed the Toledo Academy of Medicine, June 3, on "Doctors and Lawsuits."——The Academy of Medicine of Cincinnati and the Cincinnati Dental Society have established joint headquarters in the Union Central Life Building. In addition to an assembly hall which the societies have heretofore used for meetings, there will be offices, a lounge and library.——Drs. Don C. Hughes and John M. Firmin addressed the Hancock County Medical Society, Findlay, June 2, on Addison's disease and treatment of hemorrhoids, respectively.——Dr. George E. McKean, Detroit, addressed the Summit County Medical Society, Akron, June 7, on pneumonia.

PENNSYLVANIA

Society News.—Dr. Charles C. Wolferth, Philadelphia, addressed the Delaware County Medical Society at the Springhaven Country Club, June 9, on "Angina Pectoris and Coronary Occlusion."——Dr. George Wagoner, Philadelphia, was the speaker before the Cambria County Medical Society, Johnstown, June 9, on "Evidence of Disease as Seen in the Skeletal Remains of Antiquity."——Drs. Otto C. Gaub and Ernest W. Willetts, Pittsburgh, addressed the Washington County Medical Society, June 8, on "The Abdomen as a Diagnostic Problem" and "Diagnosis and Treatment of Anemia," respectively.

Philadelphia

Hospital News.—A five-story addition, to be known as the Benjamin Rush Building, was opened at the Philadelphia Children's Hospital, June 1. The building is named for a descendant of Dr. Benjamin Rush, Philadelphia physician and signer of the Declaration of Independence. It gives the hospital a capacity of 200 beds and adds to the dispensary and outpatient departments.——A research laboratory for pathology and bacteriology, equipped at a cost of $25,000, has been opened at St. Joseph's Hospital.

New Building for Jewish Hospital.—Mrs. Anna Esther Fridenberg has presented to the Jewish Hospital $400,000 in cash for the erection, equipment and partial upkeep of a surgical ward building. The gift was a legacy left to Mrs. Fridenberg by the will of her brother, M. S. Fridenberg, who requested that she use the money to build a memorial to members of the Fridenberg family. Plans for the Fridenberg Memorial Surgical Building will provide for fifty-six ward beds, four operating rooms and other necessary facilities. It is expected that construction will begin soon.

University News.—Dr. Madge Thurlow Macklin, of the University of Western Ontario Medical School, London, addressed the staff of the Cancer Research Laboratories, University of Pennsylvania Graduate School of Medicine, May 31, on "The Rôle of Inheritance in Human Neoplasms and Its Diagnostic Significance."——George Barton Cutten, Ph.D., president of Colgate University, Hamilton, N. Y., was the guest speaker at the commencement of Jefferson Medical College, June 3; his subject, "A Layman's Advice to Doctors." June 2 was Alumni Day, which was celebrated with clinics at the Jefferson Hospital, followed by the annual dinner.

TEXAS

After Thirty Years' Service.—Dr. Alonzo Garwood, who has been health officer of New Braunfels more than thirty years, recently resigned on account of ill health. During Dr. Garwood's term of office he has served the city under seven administrations of mayors.

Society News.—Drs. Wayne T. Robinson and Sim Driver spoke at a meeting of the Dallas County Medical Society, June 9, on "The Aschheim-Zondek Test for Pregnancy" and "The Maggot Treatment of Osteomyelitis," respectively. A symposium on neurosyphilis will be presented at the meeting, June 23, with the following speakers: Drs. Truman C. Terrell, Fort Worth; Guy F. Witt and Arthur G. Schoch, Dallas. —— Dr. William Hodges McKnight addressed the Tarrant County Medical Society, Fort Worth, May 17, on "Symbiotic Infection of Abdominal Operative Wounds."

WEST VIRGINIA

Society News.—Dr. Fred W. Rankin, Rochester, Minn., addressed the Ohio County Medical Society, Wheeling, May 20, on "Surgical Treatment of Cancer of the Large Bowel."—— Dr. Chauncey B. Wright addressed the Cabell County Medical Society, Huntington, May 12, on the cause of pain and rigidity in appendicitis.——Dr. Harry E. Mock, Chicago, was the speaker at a joint meeting of the Monongalia, Harrison and Marion county medical societies at Morgantown, May 25, on "Back Injuries."——Drs. William W. Strange and Raymond M. Sloan, Huntington, addressed the Kanawha County Medical Society, Charleston, May 11, on "Surgery of the Sympathetics" and "Ketogenic Diet in the Treatment of Epilepsy," respectively. ——Dr. Alexander J. Burkholder, Layland, among others, addressed the Fayette County Medical Society, Oak Hill, May 11, on undulant fever.

State Medical Meeting at Parkersburg.—The sixty-fifth annual meeting of the West Virginia State Medical Association will be held in Parkersburg, June 20-23, under the presidency of Dr. Albert H. Hoge, Bluefield. Guest speakers will be:

Dr. Mont R. Reid, Cincinnati, "Treatment of Thyroid Intoxication."
Dr. Bernard H. Nichols, Cleveland, "Excretion Urography."
Dr. Hugh S. Cumming, Washington, D. C., "Public Health Service, with Special Reference to Milk Sanitation."
Dr. Elmer B. Freeman, Baltimore, "Practical Value of Special Diagnosis Methods in Study of Digestive Diseases."
Dr. Albert Graeme Mitchell, Cincinnati, "Practice of Preventive Pediatrics."
Dr. Samuel Goodwin Gant, New York, "Plea for Perineal Versus Other Procedures in Rectal Cancer Extirpation."
Dr. Waitman F. Zinn, Baltimore, "Cancer of the Larynx."
Dr. Victor W. Fischbach, Cincinnati, "Study of Sinus Disease in Children."
Dr. Jacob A. Bargen, Rochester, Minn., "Differential Diagnosis of Types of Colitis and Their Treatment."
Dr. Henry H. Kessler, Newark, N. J., "Estimation of Permanent Disabilities in Industrial Accidents."
Dr. Dean Lewis, Baltimore, "Differential Diagnosis of Bone Lesions."

Dr. Hoge will deliver his presidential address Tuesday evening, June 21, entitled "A Medical Retrospect." The annual banquet will be held Wednesday evening, with Dr. Gant as the speaker, and the annual golf tournament will be run off Monday, June 20.

WISCONSIN

Dinner in Honor of Dr. Bardeen.—The medical faculty of the University of Wisconsin will give a dinner at the Memorial Union, Madison, June 20, in honor of Dr. Charles Russell Bardeen, marking his twenty-fifth anniversary as dean of the medical school. Dr. Bardeen, a native of Michigan, was graduated in medicine from Johns Hopkins University School of Medicine in 1897 after having taken an academic degree at Harvard. He remained at Johns Hopkins as a member of the teaching staff until 1904, when he came to Wisconsin as professor of anatomy.

GENERAL

Yellow Fever Volunteer in Hospital.—John H. Andrus, one of the army enlisted men who allowed themselves to be bitten by mosquitoes infected with yellow fever in the famous experiments by the Yellow Fever Commission in 1900, has recently entered Walter Reed General Hospital, Washington, D. C., to undergo treatment for paralysis. Mr. Andrus, who is advertising manager for a manufacturing firm in Camden, N. J., is said to have suffered from arthritis for eighteen years. With other members of the group, he was awarded a Congressional Medal and a pension of $125 a month in 1929 in recognition of his service.

Dr. Long Awarded Trudeau Medal.—Dr. Esmond R. Long, Chicago, was awarded the Trudeau Medal by the National Tuberculosis Association, June 6, at its annual meeting in Colorado Springs, Colo. The medal is awarded each year "for outstanding service to the tuberculosis movement," the Chicago *Tribune* reports. Dr. Long, professor of pathology, Graduate School of Medicine of the Division of Biological Sciences, University of Chicago, recently resigned his professorship, which he had held since 1928, to go to Phipps Institute of the University of Pennsylvania, Philadelphia, as director of laboratories. He received his bachelor's degree, doctor of philosophy and medical degree, all from the University of Chicago.

Association for Study of Feebleminded.—The fifty-sixth annual session of the American Association for the Study of the Feebleminded was held, May 26-29, in Philadelphia, under the presidency of Dr. Harvey M. Watkins, Polk, Pa. Among the speakers were Edgar A. Doll, Ph.D., Vineland, N. J., on "Psychological Aspects of the Birth-Injured Mentally Deficient"; Dr. Leon Pierce Clark, New York, "Psychoanalytic Interpretation of Mental Arrest," and Dr. Charles S. Woodall, Belmont, Mass., "Offspring of Feebleminded and Mentally Subnormal Mothers." Dr. Howard W. Potter, New York, was installed as president, and Dr. Ransom A. Greene, Waverley, Mass., was chosen president-elect. Dr. Groves B. Smith, Godfrey, Ill., is secretary.

Credentials Stolen.—Dr. John H. Hrabik, Murphysboro, Ill., writes that about May 1 his office was entered by a morphine addict, who took, among other things, his army discharge papers, army compensation certificate and a pass book on the First National Bank of Murphysboro. Since that time numerous forged checks have arrived at the bank from points in Indiana, Kankakee and East St. Louis, as well as letters from physicians who received forged checks. In all cases, the person has been posing as a World War veteran who had purchased a farm in the vicinity, and using Dr. Hrabik's credentials as identification. The checks, which have ranged from $2 to $90, amount to about $400. Should this man be apprehended, please notify the sheriff of Jackson County, Murphysboro.

Milwaukee Wins Health Conservation Contest.—Milwaukee won first place among cities of more than 500,000 population in the annual health conservation contest sponsored by the United States Chamber of Commerce in cooperation with the American Public Health Association. Winners in other population groups were: Rochester, N. Y., 250,000 to 500,000; New Haven, Conn., 100,000-250,000; Evanston, Ill., 50,000-100,000; Brookline, Mass., 20,000-50,000, and La Salle, Ill., 20,000. There was an increase in enrolment of more than 27 per cent, the chamber of commerce reported. Although the requirements were higher in the 1931 contest than in 1930, more than 70 per cent of the cities that competed in both years made higher scores in 1931, it was said. Each city was awarded a bronze plaque at a ceremony at the annual meeting of the United States Chamber of Commerce in San Francisco, May 17.

Display of Public Health Equipment.—The first display of equipment, materials, methods and services for the furtherance of public health ever to be held on the Pacific Coast has just been announced. This will be the Los Angeles County Public Health Exposition, which will be conducted in the buildings of the International Industrial Expositions, Limited, August 12-18, under the auspices of the Los Angeles County Tuberculosis and Health Association. Many other associations interested in public health have arranged to participate in this enterprise. There will be exhibits by schools, health departments, recreation departments, chambers of commerce, and other similar organizations. Products and equipment of recognized standard used in disease prevention and health building will be shown and all types of appliances and equipment, products and materials, and methods and services pertaining to health and sanitation will be displayed. A board of directors and an advisory committee have been appointed. The technical committee appointed by the board of directors will pass on applications for exhibiting space.

Medical Bills in Congress.—*Changes in Status:* Government competition with private enterprise has been the subject of investigation during the week by a committee of the House, appointed pursuant to H. Res. 235. Representative Shannon, Missouri, is chairman of the committee. H. R. 10238 has been reported to the Senate, without amendment, creating a reimbursable fund to be used for special medical and surgical work among the Indians of the Fort Peck Indian Reservation, Montana. H. R. 11267, the economy bill, has passed the Senate, with amendments. As reported to the Senate, the bill contained

several provisions dealing with compensation and hospitalization of veterans, among which was one proposing, in effect, to deny free hospitalization for nonservice disabilities to those veterans financially able to pay for treatment. The Senate, however, eliminated from the bill all provisions relating to veterans except one section creating a joint congressional committee to conduct a thorough investigation of the operation of the laws and regulations relating to the relief of veterans and to report to Congress not later than Jan. 1, 1933. H. R. 12448 has passed the House, amending the Disabled Emergency Officers' Retirement Act. Under this bill, an emergency officer whose disability is only *presumptively* of service origin will not be entitled to retirement under the act. The bill is now pending before the Senate Committee on Military Affairs. H. R. 11897, the War Department appropriation bill, has passed the Senate, with amendments. As passed by the House, this bill proposed to reduce the number of officers in the army from 12,000 to 10,000, substantially reducing the number of officers in the medical corps. It proposed, too, the discontinuance of the training of physicians and dentists for military service through the Reserve Officers Training Corps. The Senate struck out these provisions, but whether this action is effective will depend on the result of conferences between conferees on the part of the Senate and of the House.

Society News.—The American Physiotherapy Association, an organization of technicians, will hold its annual meeting in Milwaukee, June 27-30.——Dr. William deB. MacNider, Chapel Hill, N. C., was elected president of the American Society for Pharmacology and Experimental Therapeutics at its annual session, April 30; Alfred N. Richards, Ph.D., Philadelphia, vice president, and Dr. Velyien E. Henderson, Toronto, Canada, secretary, reelected. The next annual meeting of the association will be held at Cincinnati, April 10, 1933.——At the annual session of the American Pediatric Society, May 28, Dr. Oscar M. Schloss, New York, was made president, and Dr. Hugh McCulloch, St. Louis, reelected secretary. The society will meet, May 1-3, 1933, in Washington, D. C.—— The officers of the American Otological Society for the ensuing year are Drs. George L. Tobey, Jr., Boston, president; John R. Page, New York, vice president, and Thomas J. Harris, New York, reelected secretary. The next annual session of the society will be held at Washington, D. C., May 2-3, 1933. ——Dr. Joseph C. Beck, Chicago, was named president of the American Laryngological, Rhinological and Otological Society, May 25, and Dr. Robert L. Loughran, New York, reelected secretary. The society will meet in Chicago in 1933.——At the annual meeting of the American Laryngological Association, Dr. George Fetterolf, Philadelphia, was elected president, and Dr. George M. Coates, Philadelphia, secretary. The next session of the society will be held in Washington, D. C., May 2-4, 1933.——The thirteenth annual conference of the American Federation of Organizations for the Hard of Hearing will be held in San Francisco, June 20-23, under the presidency of Dr. Austin A. Hayden, Chicago. Speakers at the scientific session and their subjects will be Drs. Hayden, "Willing Ears"; Isaac H. Jones, Los Angeles, "Hearing Aids"; Moritz Weber, San Francisco, "Research in Deafness," and Mrs. Annette Abbott Adams, San Francisco, legal aspects of this handicap. —— Dr. George P. Muller, Philadelphia, was elected president of the American Association for Thoracic Surgery at the recent annual meeting in Ann Arbor, Mich. The 1933 session will be held in Washington, D. C.——Dr. Richmond McKinney, Memphis, was elected president of the American Bronchoscopic Society at the annual meeting in Atlantic City, May 21.

HAWAII

Territorial Election.—Dr. Grover A. Batten, Honolulu, was elected president of the Hawaii Territorial Medical Association at its annual meeting in Honolulu, April 23-25. Other officers of the association are Drs. Wah K. Chang, Honolulu; Archie Orenstein, Hilo; Lawrence L. Patterson, Kapaa, and William T. Dunn, Lahaina, vice presidents; and Dr. Lyle G. Phillips, Honolulu, secretary, reelected. The program of the association included as speakers Dr. Frank C. Spencer, Honolulu, on "Trichomonas Vaginalis Vaginitis"; Dr. Newton E. Wayson, Honolulu, and Theodore Rhea, "Leprosy: Some Observations on Its Epidemiology in Hawaii"; Drs. Guy C. Milnor and Eric A. Fennel, Honolulu, "Placental Diseases"; Douglas B. Bell, "Primary Pneumococcus Peritonitis"; Adolph G. C. Schnack, Honolulu, "Flatulence"; Randolph L. McCalla, Lanai City, "Effect of Hydration on the Action of Insulin"; Stewart E. Doolittle, Honolulu, "Tuberculosis as a Family Disease"; Grover A. Batten, Honolulu, "Gastric and Duodenal Ulcer: Some Observations Concerning Surgical Mortality"; Joseph W. Lam, Honolulu, "Methods of Contraception"; Clarence W. Trexler, Honolulu, "Modern Treatment of Ozena"; Nils P. Larsen, Honolulu, "Response of the Arterial Tree to Exercise"; Edward S. Goodhue, Hoolehua, "The Marching Years"; Arthur W. Duryea, Honolulu, "Lobar Pneumonia Survey"; Major Albert Bowen, Honolulu, "Use and Value of Postmortem Radiographs," and Dr. Ralph E. Cloward, Honolulu, presented a case report. Dr. Joseph E. Strode, Honolulu, delivered the presidential address on "The Progress of Medicine in Hawaii."

CANADA

Dr. Penfield to Head Neurologic Institute.—With the announcement of a grant of $1,232,652 from the Rockefeller Foundation to McGill University, Montreal, for the establishment of a neurologic institute, plans for the development of a neurologic center at the school were disclosed. The grant will provide for the construction of a new building, specially equipped for research in neurology, neurosurgery and the physiology and pathology of the nervous system. More than $150,000 has been pledged by friends of the university and members of the governing board. Dr. Wilder G. Penfield, professor and head of the department of neurology at McGill, has been selected to direct the institute. Dr. Penfield was born in Spokane, Wash.; he is a Rhodes scholar and a graduate of Johns Hopkins University School of Medicine. His associates will include Drs. Colin K. Russel and Frederick H. MacKay, clinical professors of neurology, and William V. Cone, assistant professor of neurologic surgery, also a native of the United States. The new building will be erected on a site opposite the present neurologic laboratories in the Royal Victoria Hospital building. The institute will be connected with the hospital and the pathologic building by an underground tunnel. Tentative arrangements provide for the erection of a seven story building to contain wards for public, semiprivate and private rooms, operating rooms, research laboratories, offices, and a few rooms for resident graduate students.

FOREIGN

Personal.—Sir Aldo Castellani of the London School of Tropical Medicine and Hygiene is one of four recipients of the Mussolini Prize of 50,000 lire (about $2,500) for special distinction during the past year, according to *Science*.

Cholera in Shanghai.—One hundred and ninety cases of cholera have been reported in Shanghai, according to the Chicago *Tribune*, June 7. In an effort to check the epidemic, the report said, the authorities have inoculated 135,000 persons.

Victor Horsley Memorial Lecture.—Dr. Edgar Douglas Adrian, Foulerton research professor of the Royal Society at Cambridge University, will give the triennial Victor Horsley Memorial Lecture, July 20, on "Visceral Sense Organs." This lectureship was established in 1920 to commemorate the services of Sir Victor Horsley to science and the British Empire. Its trustees are the presidents of the Royal Society, the Royal College of Surgeons of England and the British Medical Association, the senior physician to the National Hospital, Queen Square, the senior surgeon to University College Hospital and Mr. Stanley G. Robinson, son-in-law of Sir Victor Horsley. Dr. Adrian recently lectured in Philadelphia (THE JOURNAL, Nov. 21, 1931, p. 1547) and other cities in the United States.

Society News.—The Société de Neurologie held its annual international reunion, May 31-June 1, in Paris. Epilepsy was the subject selected for study, with Drs. Foerster, Breslau; Pagniez, Paris; Abadie, Bordeaux, and Crouzon, Paris, as the speakers. Research carried on under the auspices of the Déjérine Foundation was announced at this meeting: Dr. Baudouin spoke on "Experimental Hyperpnea"; Drs. Mr. and Mrs. Sorrel-Dejerine, "Pott's Paraplegia," and Dr. Cornil, Marseille, "Anatomic Classification of the Marrow and Its Covering." The Charcot Prize winner, Dr. Alajouanine, spoke on "Anterior Subacute Poliomyelitis."——The twelfth session of the "Medical Days of Brussels" will be held, June 25-28, under the presidency of Prof. Fernard Heger. Practical demonstrations will be given in the hospitals, and the theoretical lectures will be presented by medical authorities from various countries of Europe. Dr. René Beckers, 141, rue Belliard, Bruxelles, is secretary-general.——American physicians who expect to attend the second International Congress of Oto-Rhino-Laryngology in Madrid, Spain, September 27-30, are requested to send their notification blanks without delay to Dr. Alberto Fumagallo, secretary-general of the congress, at Madrid. The official ship for American delegates will leave New York, September 17, and proceed direct to Vigo, Spain. Information may be obtained from Marcel Colin, 8 Investment Building, Washington, D. C.

Foreign Letters

LONDON

(From Our Regular Correspondent)

May 21, 1932.

A Criticism of Diet

A committee of authorities on diet, consisting of Sir F. Gowland Hopkins, Prof. E. P. Cathcart, Prof. Edward Mellanby and Prof. V. H. Mottram, appointed to advise the minister of health on the practical application of modern advances in the knowledge of nutrition, has submitted a memorandum on the criticism and improvement of diets. The committee considers that the needs of the adult man are 3,000 calories a day and of the adult woman, 2,500. For children under the age of 1 year the daily need is 600 calories; from 1 to 2 years, 900; 2 to 3 years, 1,200; 3 to 6 years, 1,500; 6 to 8 years, 1,800; 8 to 10 years, 2,100; 10 to 12 years, 2,400; girls 14 years or over, 2,500; boys 14 years or over, 3,000. In temperate climates the range for protein is from 10 to 15 per cent of the total calories, for fat 20 to 35, and for carbohydrate 50 to 70. If the amounts of protein and fat fall much below 80 and 50 Gm., respectively, a day, or the percentage of calories derived from carbohydrate rises much above 66, the diet is in need of improvement.

A second criterion is the supply of first class protein. Some proteins replace a greater amount of protein lost in the body by wear and tear than others and are also more adequate for purposes of growth. These are termed first class proteins and (for practical dietetics) are found only in animal products, such as cheese, eggs, fish, meat and milk. The amount of first class protein necessary per man daily is 37 Gm. Most middle class diets contain about 55 Gm. but working class diets frequently fall below the standard.

The third and fourth criteria are mineral matter and vitamins. Unfortunately there are as yet no quantitative data of the amount of the different vitamins essential. However, the foods that are useful in supplying mineral matter are useful in supplying vitamins. For example, liver and egg yolk, which are good sources of iron, supply also vitamin A, and egg yolk also supplies vitamin D; fish liver and roe, which supply iodine, also supply vitamins A and D; milk and cheese, which supply calcium, supply vitamin A. The chief essential mineral elements are calcium, phosphorus, iodine and iron. There is evidence that too little calcium, iodine and iron are frequently contained in the diet. Calcium is found in cheese, egg yolk, milk, bran and green vegetables; phosphorus, in cheese, egg yolk, milk, bran and oatmeal; iodine, in sea foods (fish, shellfish and dulse) and a few leafy vegetables (watercress, beet leaves, onions); iron, in egg yolk, meat, liver, oatmeal and green vegetables.

The essential vitamins are found as follows: Vitamin A occurs in liver, carrots, butter, milk, cheese, most animal fats (not lard), yellow fruits and vegetables and green vegetables. Vitamin B consists of many fractions, but there is little evidence that it or its essential components are absent to any important degree from any but the worst balanced diets. Moreover, if the diet is satisfactory as regards vitamins A, C and D, it is probably complete as regards vitamin B. Vitamin C is found in fresh foods and is the only vitamin which suffers much in domestic cooking, so that cooked vegetables and fruit should not be relied on. Vitamin D is found in fat fish (especially in fish liver oils), fish roe, egg yolk, summer milk butter and green vegetables.

Of the mineral matter, calcium is most likely to be deficient in this country and possibly iodine in certain hilly and mountainous districts. Of the vitamins, the most likely to be missing is D, followed by A and then C. It will be seen that if a diet contains milk and dairy products generally, fish, eggs and fresh salad vegetables there is little need to criticize it as regards its mineral and vitamin content. There are no quantitative data as regards the need for vitamins, but probably if the diet contains one pint of milk daily, plenty of cheese, one orange or one tomato or a helping of raw salad, and if an ounce of butter (or vitaminized margarine) is given, and if some sort of fat fish, such as herring, appears in the winter menu once a week (or, in default, half a teaspoonful of cod liver oil is taken), the mineral and vitamin content of the diet is satisfactory.

Prescriptions in Cipher

Attention has been called in the press to the practice of giving patients a prescription in cipher, to which a certain pharmacist holds the key. The practice is new and probably confined to a few physicians. In a press interview Dr. Cox, medical secretary of the British Medical Association, has described it as "an abominable practice. . . . The use of codes of this kind may give rise to a suspicion that some kind of financial arrangement has been arrived at between the pharmacist and the consultant. There is also the implication that some secret remedy is being used, which is grossly unprofessional. A patient should be able to produce prescriptions to any other doctor he consults later, so that the treatment he is having is known." On the other hand, the system has been defended on the ground that it preserves the utmost secrecy. The patient does not know what drug he is taking and the danger of his becoming an addict is eliminated. If he should in any way detect the drug he cannot present the prescription to another pharmacist and obtain it. For medical reasons it is sometimes desirable that a patient should not know what drug he is taking.

British Health Resorts

The financial depression has given rise to a movement "to keep the money in the country" by using British health resorts instead of the popular continental ones. The British Health Resorts Association has been formed with the support of many leading physicians. The last of three conferences held by it has been held at Bournemouth, on the south coast. Sir Thomas Oliver, who presided, said that few islands had such an imposing coast line and such attractive scenery as our own, the number and variety of the coast resorts being unsurpassed. Dr. William Byam, lecturer on tropical diseases at St. George's Hospital Medical School, said that he had endeavored to keep patients in this country but had met too many failures. He gave the following record of reasons for not staying in England, in the order of frequency: (1) climate, (2) English standard of cooking, (3) unfashionableness of our resorts, (4) need for more complete change of scene and occupation, (5) lack of amusements, (6) the ban on gambling, (7) greater cost of a holiday here, and (8) absence of facilities for treatment. Dr. R. Fortescue Fox declared that in the matter of organization we were behind other nations. On the continent, health resorts enjoyed state support, and admirable handbooks on them were distributed in England. Dr. Manson-Bahr said that diet in British health resorts was the thing that bothered him. There seemed to be no one to supervise the diet in a case of, say, sprue, in which treatment was almost entirely dietetic.

The Unhygienic Condition of Merchant Ships

At the Congress of the Royal Institution of Public Health, which has been held in Belfast, Sir Thomas Oliver, emeritus professor of medicine in the University of Belfast, strongly criticized the sanitary condition of merchant ships. He pointed out that in 1910 the death rate of seamen from pulmonary tuberculosis was almost double that of most other occupations; that valvular disease of the heart was double, pneumonia 80 per cent above the average, and accident four times the basic figure. In 1921-1923 the general mortality of seamen was 76.8 per cent above the average and for pulmonary tuberculosis 35.5 per

cent in excess. The high death rate from pulmonary disease showed, among other things, the inadequacy of the sleeping accommodations on board ship. He considered that the condition on British ships was worse than on those of other nations. Of the ships inspected in the port of Manchester in 1926, 30.5 per cent of the British ships were found to be insanitary, 18.9 per cent of the Norwegian, and 17.2 per cent of the American.

Bats as Carriers of Rabies

The legislature of Trinidad has voted $1,000 as an honorarium to Dr. Pawan, who proved that bats were the carriers in the recent outbreak of rabies in the colony. Mr. Grier, speaking for the government, declared that the amount hardly covered Dr. Pawan's expenses, but it was an acknowledgment of his great work. Dr. Pawan is the Trinidad government bacteriologist. The disease that he has traced to bats baffled investigators for a time, who ascribed the deaths caused by it to "a virus of rabies of a hitherto unknown type." In a report to the government last November, the suggestion was made that bats were the carriers. This was confirmed by Dr. Pawan, who found lesions typical of rabies in the brain of a bat.

PARIS

(From Our Regular Correspondent)

May 11, 1932.

Research on Microbic Polymorphism

The question of microbic polymorphism continues to have great interest for biologists, and particularly the study of filtrable types of micro-organisms. The optical laboratory of Professor Fabry has succeeded, it seems, in manufacturing such powerful apparatus that the investigator is enabled to observe the presence of frankly visible granulations, by means of a special form of illumination, in cultures filtered through the most dense candles under heavy pressure. These researches will soon be published. Mr. Hauduroy has described an evolutional cycle of Bacterium typhosum. Under the action of the d'Herelle bacteriophage, the bacilli of typhoid and paratyphoid are capable of assuming invisible filtrable forms. These are found in some typhoid patients, either in the blood at the beginning of the infection or in the stools at the termination of the disease. They provoke certain septicemias, in which it appears that the normal form of the bacillus is not found. Mr. Hauduroy thinks also that contaminated water contains usually only filtrable forms and that the bacillus itself is not found. These discoveries justify therefore the following hypothesis: The healthy individual becomes infected through the ingestion of invisible filtrable forms of Bacterium typhosum. These develop gradually in the organism, taking on eventually the bacterial forms; then, when the disease terminates, these bacterial forms are again broken up by the bacteriophage, or in some other manner, and scattered about through nature under their first invisible filtrable form. This theory leads to a conclusion that has a great significance for public health; namely, that drinking water in which the usual microbiologic researches have been unable to show the presence of a typhoid or paratyphoid bacillus may nevertheless be capable, under certain conditions, of producing a typhoid infection. Research of the same nature has been undertaken by Dr. Vaudremer, who for years has been patiently studying the polymorphism of the tubercle bacillus and its filtrable forms. He even succeeded in securing an attenuated form that gives excellent results in the treatment of latent tuberculosis of the joints, the glands and the bones, as has been mentioned in previous letters. At present, he is engaged in studies on the bacillus of leprosy and he has secured some interesting results. In collaboration with Mr. Sézary and Mlle. Brun, by cultivating successively fragments of cutaneous leprosy and of leprous spleen in a filtered extract of Aspergillus fumigatus, in Martin's bouillon, ordinary potato bouillon and glycerinated potato bouillon, Mr. Vaudremer secured pseudomeningococcal gram-positive forms, short and granular cyanophil bacilli; long, flexuose and granular cyanophil bacilli, and finally acid-resistant forms. This evolution covered a period of about two years. Fragments of lepromas were ground up in aspergillar fluid. This fluid filtered through candle L^3 did not produce cultures during the first nine months; but, from that time on, pseudomeningococcal forms appeared in the potato bouillon and developed into acid-resistant forms. Vaudremer and Sézary think that the organisms that develop from these cultures are forms of the Hansen bacillus and that this bacillus, similar to many others, may present itself in the form of elements that pass through an L^3 candle.

Radium in the Treatment of Uterine Cancer

In response to the communication of Professor Jean-Louis Faure, addressed to the Academy of Medicine, pertaining to the encouraging results that he had secured from total abdominal hysterectomy in the treatment of uterine cancer, Mr. Regaud, director of the Institut du radium, presented a paper, at the following meeting of the academy, in which he submitted the statistics of his institute on the subject. He took account only of the cases treated at least five years previously. From 1922 to 1926, 429 cases of all degrees of extension were treated, in which 142 recoveries (33 per cent) were secured, which are judged now after the lapse of at least five years. The authors counted among the failures eleven women who died from intercurrent disease and seven women (1.6 per cent) whose whereabouts is unknown, but who were in good health at last accounts, but before the lapse of the five-year period. Of all the patients judged cured at the end of the fifth year, in only four has a recurrence since been noted. Of the cases of the first degree in which the neoplasm appeared confined to the cervix, twenty-nine were treated by radium alone, twenty-three of whom (79 per cent) recovered. There were no deaths. The surgical statistics recently published by Jean-Louis Faure appear more brilliant because they included only a selection of the best cases of the first degree. But if one adopts a common definition of the lesions, one finds only 70 per cent of recoveries. The cases of the second degree—that is to say, at the limit of operability—treated at the Institut du radium numbered 121 and furnished 50 recoveries (41 per cent, as compared with 23 per cent at the gynecologic clinic). The cases of the third degree, with extensive invasion of the parametrium, which are not amenable to surgical treatment, furnished 27 per cent of recoveries of five years duration at the Institut du radium. It is apparent from these facts, according to Mr. Regaud, that, even in the better cases, the radiotherapeutic methods give results superior to those secured with the Wertheim operation. Although equal from the standpoint of technical perfection, this operation has therefore only rare indications.

Refusal of Surgical Aid Following an Occupational Accident

The Société de médecine légale recently devoted two sessions to the discussion of the question whether the refusal, by a person suffering an occupational accident, to submit to an operation, decided on by the physician—a refusal that would increase his degree of invalidity—was legally of such a nature as to justify a reduction in the compensation to be paid by his employer. The question was brought up first by a communication of Dr. Leclercq of Lille with reference to the radical treatment of hernia. Mr. Leclercq emphasized that French law was not very clear on this point and that the various courts of the country had rendered quite contradictory decisions in the matter. He therefore asked the Société du médecine légale to render an opinion that would serve to guide the courts in the future. His personal opinion is that a radical inter-

vention in hernia, even in a healthy person and although performed under local anesthesia, cannot be considered devoid of risk to life. That was also the opinion of Dr. Duvoir, court medicolegalist. He recalled the opinion formulated by the Academy of Medicine during the war, when the question of the right of a wounded person to refuse an operation was put before it by the minister. He cited also the opinion of Professor Boudin, who has treated this subject in a recent work, in which he points out that the question of consent to operations has created a conflict with the new social laws. It is unquestionably true that "the patient is master of his own body." But the social laws pertaining to aid and civil responsibility in common law bring in a third party, namely, the general public, which is responsible for the cost of treatment and for the degree and length of invalidity. The obligation imposed by the law on the employer to indemnify the victim of an occupational accident entails an obligation on the workman to submit to the treatment prescribed by medical science; but the workman retains nevertheless the right to refuse to undergo an operation. It is the duty of the courts to determine the motives for his refusal. If the refusal is not justified by the gravity of the operation or the uncertainty of the results, the judge is entitled to reduce, or even to suppress, the daily indemnity, and the court may reduce the percentage of disability to that which would still be present if the operation had been performed. After the consolidation, the condition of the victim is regarded as final and no operation can be imposed by the employer, nor, on the other hand, can an operation then be demanded by the workman. Mr. Mouchet, in the case of hernia, holds that one can only strongly advise the patient to submit to the operation, calling his attention to the fact that it is to his interest in order to avoid possible strangulation later, but an operation cannot be forced on him if he refuses, for it cannot be denied that there are risks involved. The question was then raised as to the right of the surgeon to impose on a wounded person an operation that may save his life, when the patient is unconscious and cannot be consulted in the matter. The same question arises with reference to wounded mental patients. If the case is not urgent, it is better to seek authorization from the family of the mental patient, the latter being regarded as a child before the law. The conclusion of the discussion was that, in spite of the grave risk of herniary strangulation to which the patient is exposed who refuses an intervention, one cannot impose an operation for the radical treatment of hernia (1) because the operation cannot be declared absolutely without danger, and (2) because one cannot affirm that the operation will assure a definitive recovery.

Celebration of Centenary of Alfred Fournier

The centenary of the French syphilologist Alfred Fournier (1832-1914) was celebrated by ceremonies that lasted a week. They began, May 9, with a meeting of the Conférence internationale contre la syphilis. Among the foreigners attending were Jadassohn of Breslau, Ehlers of Copenhagen, and a number of Belgian, Italian and Spanish syphilologists. The celebration of the centenary was to have been held, May 12, at the Sorbonne, with the attendance of the president of the republic. In the interval, the president was assassinated and his funeral was held on the day set for the holding of the ceremony. The celebration was therefore transferred to the more modest quarters of the museum of the Hôpital St. Louis. A number of speakers described the work of Fournier, which began with the discovery of syphilitic chancre and soft chancre and ended with the announcement of the syphilitic origin of tabes and of dementia paralytica, and by his works on heredosyphilis. On this occasion, the enlarged Hôpital St. Louis and the new institute termed the Alfred Fournier Institute were dedicated. This institute contains laboratories for serologic and experimental researches, the control of medicaments and an antivenereal dispensary. This institute will be the headquarters of the Ligue française contre le péril vénérien and of the Société de prophylaxie sanitaire et morale. On account of the national mourning for the president, all the planned festivities were abandoned.

BERLIN

(From Our Regular Correspondent)

May 9, 1932.

Congress of the German Roentgen Society

Under the chairmanship of Professor Grebe, director of the Röntgenforschungs-Institut of the University of Bonn, the Deutsche Röntgengesellschaft held its congress in Dresden, April 3-5. More than seventy addresses and communications were presented. In spite of the economic depression, and the large number of congresses that have followed one another in quick succession, about 600 German and foreign participants appeared, and the congress offered a good survey of the present status of roentgenology. The first day was devoted to technical, the second to therapeutic, and the third to diagnostic addresses.

Behnken and Brasch, both of Berlin, dealt with roentgen rays of the highest penetrative power. The production of high tensions is easy for technicians, but more difficult is the production of correspondingly resistant tubes. With a special type of generator, roentgen rays can be produced that will penetrate 20 cm. of lead. The speaker mentioned a tube that, supplied with 2,400,000 volts, furnishes alpha particles and cathode rays of great penetrative power. The roentgen rays produced by it correspond approximately to the gamma rays of radium. With a system capable of supplying 7,000,000 volts, which will soon be available, roentgen rays of much greater penetrative power can be produced. It is hoped that with their aid the breaking up of atoms can be successfully carried out.

H. Franke of Hamburg and Mühlmann of Stettin discussed the use of roentgen paper for photographs, which was followed by a spirited general discussion of the subject. The quality of these papers, which have been on the market since 1923, has been improved. The relatively low price has been retained and the noninflammability has been preserved. Nevertheless, the sharpness of outline of the pictures is considerably less than in the film. They are, therefore, usable only when fine details need not be brought out.

On the day devoted to therapy, G. A. Rost, dermatologist of Freiburg, discussed the biologic bases of roentgen therapy in dermatology. He considered the action on the blood capillaries, the differences in sensitiveness, formation of pigment, physicochemical changes, remote injuries, and action in inflammations (no direct antibacterial action). The basis of indications has remained about the same in recent years, with the exception that indirect irradiation is more accentuated.

Schreus of Düsseldorf spoke on dosimetry, and methods of surface therapy. The Sabouraud tablet is useful with careful measurement of hardness and the observation of certain rules. The Sabouraud dosage should be expressed in r units on the basis of graduated curves. As the maximal doses for irradiation up to a 3 mm. aluminum half-value shield, one can figure 600 r, or with a 20 per cent safety factor, 500 r; for softer rays than with a 0.5 mm. half-value shield, only 400 r. The speaker discussed also the measurement of hardness, the distribution of doses in high voltage therapy and protective devices. Hintze of Berlin reported on 800 skin cancers irradiated in the Bier clinic. The grenz rays, which were severely criticized by many, found several defenders. Schubert of Berlin reported on experiences gained thus far with the treatment of carcinoma by means of extremely hard roentgen rays. By distributing the total dosage over fourteen days, the effect was increased so that a fairly good skin reaction developed. Haupt of Bonn gave statistics on cancer of the neck of the uterus, for the years 1915-1926, treated by operation and irra-

diation combined. Cures extending over five years in all operative cases were 42 per cent; absolute five-year recovery, 29.7 per cent. Dietel of Heidelberg described the present method of irradiating cancer of the neck of the uterus, at the Universitäts-Frauenklinik, Heidelberg. The best results were secured in one-stage high radium dosage with a definite technic. Large primary tumors are extirpated. For the parametrium a supplementary roentgen dose is necessary. Philipp of Berlin called attention to peculiar bone disorders in patients with uterine carcinoma subjected to roentgen irradiation.

A discussion took place on injury to the offspring by roentgen irradiation. As the Deutsche Gesellschaft für Vererbungswissenschaft had issued a warning, which, in the opinion of leading physicians, went too far, a corresponding counter-declaration was given at the joint meeting of the Bayerische Gesellschaft für Geburtshilfe und Gynäkologie and the Bayerische Gesellschaft für Röntgenologie und Radiologie, and was published in the special medical journals. Further information based on more comprehensive hereditobiologic researches and on joint researches and investigations of students of hereditary transmission and of physicians is expected shortly. Several speakers reported on the ultra short wave therapy, its physical and biologic bases and its technic. Good results were observed at the Universitäts-Frauenklinik in Berlin.

In the field of roentgen diagnosis, Albert Fraenkel of Heidelberg gave a paper on the limitations of roentgenology for the diagnosis of beginning pulmonary tuberculosis from the clinical and roentgenologic points of view. In judging some roentgenograms, one must be reserved in one's statements. Examinations at certain intervals are necessary. Unfortunately there have not been a sufficient number of necropsies covering the primary stage in early childhood and the "early case," in the adult. The roentgenogram furnishes the only diagnostic control of a possible reinfection, in the form of a number of round foci. The tuberculous focus disappears slowly and never entirely. The roentgen observation is superior to the physical but must not be exaggerated. In open tuberculosis the roentgen manifestations may be negative; that is, there are concealed cavities back of the dome of the diaphragm and back of the heart shadow, which come into view only on deep inspiration or with diagonal exposure. In a lung that appears sound and intact roentgenologically, there may be an arrested tuberculous process. Pleural adhesions and indurations may remain concealed in the roentgenogram. The roentgenologist must be thoroughly informed in regard to the patient. Wurm of Heidelberg discussed the limitations of roentgenology for the diagnosis of beginning pulmonary tuberculosis. He considered the anatomicopathologic points of view in judging the genesis and extension of specific lung foci and brought them into harmony with the roentgen manifestations. Only in 7 per cent of the cases does pulmonary tuberculosis begin with tuberculosis of the apex, which is readily diagnosed by clinical and roentgenologic means. The speaker does not consider that a "retrograde lymphogenous propagation" has been proved. The roentgenologic distinction of specific and nonspecific indurations is scarcely possible.

Kaestle of Munich presented a paper on pneumonoconioses. Extensive researches in industrial plants, chiefly with reference to sandstone, porcelain, cement, shell-lime, granite, cotton, hemp and polishings of grinding mills showed that a high percentage of silicon oxide is essential for the development of lung changes. In mines the external conditions that give rise to injuries are much more even and uniform than in factories; the individual predisposition also is important. With the same roentgen and clinical manifestations, the subjective complaints are widely different. Silicosis with degeneration and cavity formation may be free from tuberculosis. In involvements of the apex a sharp distinction between pneumonoconiosis and tuberculosis may be impossible. As a rule, however, one can recognize or suspect a silicosis preceding the tuberculosis or following the tuberculosis. Kaestle never saw a carcinoma resulting from dust irritation. Böhme of Bochum described the pneumonoconioses in miners of the Ruhr district. He had seen also carcinoma.

A lively discussion arose on the subject of hernia hiatus oesophagi. Adam of Berlin observed in forty healthy subjects that on deep inspiration a stenosis appears at the lower end of the esophagus, which leads to the formation of a sac-like diverticulum just a little higher up. As against these functional pseudohernias, Knothe of Berlin, Schatzki of Leipzig and Berg of Dortmund described the pathologic picture of true hernia of the hiatus oesophageus. H. U. Albrecht of Frankfort showed by comparison of roentgen manifestations and corresponding pathologic preparations of parts of the digestive tract to how great an extent the roentgenogram constitutes a necropsy in vivo. Gutzeit of Breslau spoke on the anatomic and functional diagnosis of gastro-enteritis with the aid of the roentgenogram. The appearance of the mucosa does not usually avail much. But one finds the sinus ventriculi dilated, the bulbus duodeni usually flaccid, the passage through the small intestine accelerated, and an increase of fluid in the small intestine and the colon. G. Velde of Greifswald in six out of forty-two cases of pernicious anemia found gastric polyps with the aid of the roentgenogram.

Kienböck of Vienna was chosen chairman of the society for 1933, and Bremen will be the place of meeting.

Medical Motion Pictures

The origins of cinematography go back to the laboratory of the physiologist, for the first experiments with instantaneous photography were undertaken to study the various kinds of movements occurring in man and animals. Since that time the film has become of great importance for medical science. It should be used for medical instruction much more than it has been. That is the demand of the surgeon Prof. A. W. Fischer and the psychiatrist Dr. E. Herz, who, writing in the *Deutsche medizinische Wochenschrift*, discuss the status of medical cinematography. Fischer demands more particularly the practical development of films for the imparting of instruction in surgery, while Herz demands a systematic collection of films dealing with the subject of research on movements in general in man. Only a central institute could accomplish these tasks. The Kaiserin-Friedrich-Haus in Berlin, which promotes postgraduate medical education, has already begun to prepare a catalogue of all existing medical films, but that is only a beginning. How the film should be used for diagnostic purposes in nervous and mental diseases is shown by Herz in his application of the method to the study of motion; for it will be recalled that it has become possible by means of films to distinguish pathologic from normal movements. Numerous other problems have been elaborated in the same manner. The restless movements of certain mental patients were studied in their peculiar form by means of a careful analysis of the film. The film may be used also as an aid in establishing the degree of disability, since the manifestations of attacks are given a fixed form in the film and serve then later as undeniable fact-finding material in rendering a decision in a given case. Thus the film takes on the character of evidence in various procedures. But the film has possibly its greatest value in the presentation of manifestations of mental patients in classroom instruction. A knowledge of disturbances of motion cannot be properly imparted without a "film textbook."

Decline in the Sales of Beverage Brandy

The Reichsmonopolverwaltung (administration of federal monopoly), which controls the sale of brandy in Germany, has published a report of sales for the period from January 1 to March 31, 1932, according to which the sales of beverage brandy for that period amounted to only 46,726 hectoliters, as compared with 87,764 hectoliters for the corresponding period of last

year. It is evident, therefore, that the consumption of beverage brandy has almost been brought to a complete standstill. The extent of this reduced consumption and the resulting decline in the revenues of the *reich* from the brandy monopoly will stand out more clearly if the recent sales' figures are compared with those of the corresponding quarter of the fiscal year 1928-1929 (before the last tax increase), during which, as compared with 46,726 hectoliters, 223,873 hectoliters was sold.

ITALY

(From Our Regular Correspondent)

April 15, 1932.

Meeting of the Medicosurgical Society

The first meeting of the Società medico-chirurgiche delle Tre Venezie was held recently at Cornegliano on the Piave, under the chairmanship of Professor Cagnetto. The chief topic on the program was the treatment of gastric and duodenal ulcers, the medical side being presented by Professor Tramontini and the surgical side by Professor Oliani.

Professor Tramontini discussed theories as to the etiology of gastroduodenal ulcer: that of Virchow and Hagem; that of Lembe and Riegel, and the views of von Bergmann. He concluded that the problem is still unsolved.

With regard to the treatment of chronic ulcer, the speaker emphasized the importance of medicodietetic treatment as recommended by different authors and stressed the need of cooperation between physicians and surgeons.

Professor Oliani discussed the problems with regard to the surgical treatment of gastric and duodenal ulcers based on his experience in 1,200 cases. He advocates radical treatment; namely, gastroduodenal resection. If done with precise technic, resection does not present greater risks than conservative surgical methods.

In the general discussion, Fasiani brought out that, in the surgical treatment of gastroduodenal ulcer, one must distinguish between gastric ulcer and duodenal ulcer, in which latter he had observed good results from a simple gastro-enterostomy.

Pieri reported good results obtained in some cases of juxtacardiac ulcer with bilateral subdiaphragmatic vagotomy. Such treatment was applied with good results also in cases of postoperative peptic ulcer and recurring gastric ulcer following resection.

Popotoschnig, on the basis of experience in 294 cases of gastroduodenal resection for ulcer, considered this the most rational intervention in these types and emphasized the need that all cases of acute conditions of the abdomen be turned over to the surgeon as early as possible, since only in that manner, without loss of time over diagnostic discussion, could the operative results, in perforated ulcers as well, be improved. Arlotta, on the basis of experience in seventy-five cases, in which various operations were performed, declared himself in favor of resection.

Manu stated that he was an advocate of the Leube diet. Excluding ulcer complications that require a surgical intervention, the speaker recommended conservative medicodietetic treatment except in cases in which medical measures are not tolerated or in which, for social reasons, the patient requires an operation. The next session will be held at Venice, the chief topic on the program being "Pathology and Clinical Aspects of Extrahepatic Biliary Tracts."

Lenses Applied to the Cornea

Professor Gualdi presented recently to the Accademia medico-fisica of Florence a special type of lens in the form of very thin capsules of glass, which are applied directly to the eyeball and in immediate contact with it, and are practically invisible. The speaker explained the technic of the application and announced the excellent results that he had secured from their first systematic use in Italy, at the Clinica oculistica in Florence, for the correction of myopia, hypermetropia and astigmatism, with many advantages over the use of spectacles; among others, an increase in visual acuity. The speaker recommended the use of this type of lens in many professions and social activities in which spectacles cannot well be worn.

Acute Anterior Poliomyelitis

At a meeting of the Accademia medico-chirurgica del Piceno, presided over by Prof. L. Cappelli, acute anterior poliomyelitis was discussed. Dr. Monti Guarnieri discussed the etiology and concluded that the causative agent is a filtrable virus and that the most common port of entry is the nasopharynx. The virus may be carried with impunity in the nasopharyngeal cavity for six or seven months and then be transferred from one individual to another.

He referred to some of the notable epidemics (that of 1916 in the United States and that of 1924 in Italy), and stated that children under 5 years of age are most subject to the disease, although an occasional case is found among adults. He described the symptoms and spoke of the forms of treatment, which, if applied early, may be helpful: convalescents' serum and Pettit's serum.

Professor Montanari explained the therapeutic action of various forms of physical therapy. He said that importance attaches at present to electrotherapy, local hot hydrotherapy, diathermy, massage, and active and passive gymnastics. He expressed himself, however, in a somewhat reserved manner as to the utility of radiotherapy. He emphasized the need of hospitalization for patients with acute anterior poliomyelitis in pediatric departments connected with the hospitals of the chief towns in the provinces.

Dr. Bartoli spoke on sequels of poliomyelitis. He emphasized that paramount attention should be given the possible beginning of deformations of the trunk and of the lower limbs. Greater cooperation between medical specialists is needed in order to be able to treat in the most complete manner and with the most satisfactory results infantile paralysis in all its manifestations, so as to prevent deformities.

Professor Montanari presented a resolution in which the academy recommended that hospitals of the chief provincial towns be provided with a pediatric department in which all persons might have an opportunity of securing physicotherapeutic and orthopedic care, in order that the consequences of this disease may be warded off.

The next session of the Academy will be held in Jesi, the chief topic on the program being "The Treatment of Diabetes."

The Treatment of Cerebral Tumors

Prof. G. Ayala presented to the Accademia dei fisiocritici di Siena a communication on the treatment of cerebral tumors. He explained a method that he had followed in many cases in which blindness was threatened and in which any sort of radical operative intervention would have been hazardous. Under such circumstances the physician must endeavor to combat the symptoms of intracranial hypertension. To that end the speaker proceeded to puncture the cerebral ventricles. He extracted ventricular fluid in varying amounts depending on the presence or otherwise of an obstructive hydrocephalus. He employed an intraventricular insufflation of sterile air, in small quantities when he did not wish to use ventriculography. He followed up the ventricular puncture with subtemporal or suboccipital decompressive craniotomy and, finally, subjected the patient to deep irradiation in three periods: one immediately after the craniotomy, one after from forty to fifty days, and one after the lapse of a year (two erythema doses for each cycle of irradiation, divided into from eight to sixteen sittings). The speaker presented one patient with a tumor of the posterior cranial fossa, who entered his clinic in a grave condition. The patient stood excellently the ventricular puncture, the craniotomy and the first series of deep irradiations. At present the patient

is so much improved that only careful examination reveals a slight cerebellar syndrome, whereas the symptoms of cranial hypertension are reduced to a papillary edema, but considerably diminished as compared with what it was at first. The course of events alone will tell whether it will be necessary to intervene locally for the surgical removal of the tumor.

The Inaugural Lecture of Professor Castellani

Prof. Sir Aldo Castellani, senator, delivered an inaugural address in connection with the opening of the new Clinica delle malattie tropicali, of the University of Rome, and dealt with the subject "Tropical Medicine from Ancient Times Down to the Present." Tropical medicine, Professor Castellani stated, is possibly the most ancient branch of scientific medicine, since the most ancient civilizations began in tropical or subtropical countries. In Egypt, evidence of specialization in the fifth century is found. Following the Roman and the Arabian periods of medicine, the school of Salerno remained all through the Middle Ages the most famous center of medical instruction. Against leprosy and the plague, tropical diseases *par excellence*, the Middle Ages were obliged to adopt defensive measures. In the modern era, Portuguese and Spanish physicians began researches on tropical medicine. Fracastoro and Atanasio Kircher prepared the way for the discoveries in bacteriology and parasitology, confirmed later by the use of the microscope. The speaker declared that if there is any field of medicine in which therapy can score brilliant successes, tropical medicine is that field.

MADRID

(From Our Regular Correspondent)

April 16, 1932.

International Congress of Surgery

The Sociedad Internacional de Cirugía recently held at Madrid its ninth congress, which delegates from several foreign countries attended. This is the first international scientific reunion held since Spain was made a republic. The inaugural session in the Palacio del Sando was attended by Mr. Alcalá Zamora, president of the republic, who made an eloquent speech. Mr. Zamora gave a reception and banquet at the royal palace to the congressmen and their families. The civic authorities also fêted the visitors in typical Spanish fashion. During the congress the topics discussed dealt with problems on the progress of surgical anesthesia, intraspinal tumors, suppuration of nontuberculous lung, and surgery of the esophagus. When the scientific sessions were over, the visitors made a trip through the most artistic cities of Spain. They were impressed by the good will existing everywhere and by the cooperation that all classes showed the government and scientific authorities.

TREATMENT OF SUPPURATION OF NONTUBERCULOUS LUNG

The first subject discussed during the congress was the treatment of suppuration of the nontuberculous lung. The following are the articles discussed: Dr. Howard Lilienthal of New York distinguished the following forms of suppuration of nontuberculous lung: (1) more or less gangrenous bronchiogenic abscesses of the lung; (2) metastatic pulmonary abscesses (secondary to infection caused by an infarct); (3) suppurative bronchopneumonia; (4) gangrenous bronchopneumonia (a variety of suppurative bronchopneumonia); (5) interstitial pneumonitis; (6) suppurative lymphangitis (a variety of interstitial pneumonitis); (7) suppurative bronchiectasis. Dr. Lilienthal emphasized the importance of the presence of anaerobic bacteria in the mouth or in the pharynx for the development of pulmonary suppuration and the etiologic significance of operations in the mouth, which sometimes cause the unexpected appearance of gangrenous pulmonary suppurations. With regard to treatment, one may distinguish pulmonary abscesses and suppurative bronchiectasis.

PULMONARY ABSCESSES

The presence of pulmonary abscess is determined by: (1) the history of the patient, which is of great importance; (2) fever; (3) cough, which may not appear until the interstitial abscess has reached a large bronchus; (4) fetor; (5) the physical signs, which may not appear until an advanced period; (6) the roentgen examination, which should be made in all cases and to which the speaker devoted a large part of his article; (7) bronchoscopy, which has a diagnostic value, especially to determine the seat of the suppurative focus; (8) the puncture, which should not be made until everything is ready for the performance of a radical intervention if it is indicated. The puncture has been followed in many cases by serious and fatal accidents. Not all types of abscesses should be treated by drainage. Abscesses of the lung should be distinguished as progressive, stationary or regressive, and not as putrid or nonputrid, chronic or acute. The rapidity of the development of the abscess and the degree of virulence of the infection determine the advisability to perform the operation. Not all acute abscesses of the lung should be operated on, although their evolution should be watched closely so that the operation, if indicated, is made at the proper time. As a rule, operations demanded by acute abscess of the lung are not so urgent as those demanded by such other conditions as strangulated hernia or acute appendicitis. However, it is preferable to evacuate interstitial suppurative collections rather than to take the risk of their rupture into a bronchus as the result of delay. As to local treatment, bronchoscopic aspirations cannot be made continuously, and the continuation of artificial pneumothorax is indicated only when marked improvement occurs during the first week following its institution. The technic for evacuation by thoracotomy is determined by the site of the abscess. However, the principles of the operation are the same in all cases and may be summarized as follows: 1. The patient's head should be at a lower level than that of his hip bones in order to prevent cerebral air embolism. 2. Local anesthesia is preferable; the anesthesia should not suppress the cough reflex, as then there is danger of aspirating infected matter in the other lung. 3. The evacuation should be made through the most direct route without entering the pleural cavity. 4. The abscess should be opened first at its inferior border. 5. Skill should prevent the appearance of any hemorrhage, which may endanger the operation. 6. The packing should not be so tight that it displaces the mediastinum. 7. The thorax should not be enclosed in a dressing. 8. The formation of flaps should be avoided, because they make further examinations of the operative field more difficult. The rib, which covers the abscess, is resected; the parietal pleura is opened, and then the operative field is isolated from the rest of the pleural cavity, by surrounding the abscess with gauze and a covering of rubber, both of which have the aim to promote the formation of pleural adhesions. Some days later, when adhesions have formed and the abscess is isolated, it is entered with a cannula attached to an aspiratory syringe. If pus comes through the cannula into the syringe, a pair of closed scissors is introduced into the cavity of the abscess, then opened and withdrawn. The surgeon's finger may now explore the abscess cavity and a gauze drain, previously moistened with antigangrenous serum, may be inserted. The drainage tube may be removed in about one month. Sometimes, after the drain has been removed, the wound heals and then reopens; this has no importance, because the wound will later heal definitely.

SUPPURATIVE BRONCHIECTASIS

The information gathered from bronchoscopy and that from the roentgen examination are complementary. The patient is in good general condition, and no characteristic symptoms may be discovered, with the exception that he has clubbed fingers, fetid breath and expectoration of foul smelling mucopurulent matter,

the amount of which does not bear any relation to the lesion in the bronchi. The remission of symptoms is frequent. The treatment frequently used is daily postural evacuation of the bronchus. Phrenicotomy, artificial pneumothorax and the bronchoscopic treatment are useless. There are palliative operations. Thoracic drainage through a bronchial stoma, although not followed by recovery, causes a diminution of the pus expectorated and makes the fetor disappear. The technic of the operation is similar to that for the evacuation of abscess of the lung, previously described. The speaker, after reviewing other methods to obliterate the bronchiectatic area, described his own method as follows: A space is formed between the parietal pleura and the ribs, by introducing a gauze packing, which is increased in size during the first few days, and then a caoutchouc ball, until the apex of the lung has been forced back and a space formed the size of a large orange. Thoracoplasty, according to Sauerbruch's method, may be resorted to when one of the lungs is normal. A marked improvement may thus be obtained, and even the clubbed fingers may disappear. Among the radical operations one may resort to is lobectomy, preceded a few days by thoracotomy. The pathologic lobe of the lung should be isolated. Its pedicle is compressed and ligated in several places. The ligatures should be long enough to come out of the posterior angle of the operative wound. Hemostasis should be carefully made. To avoid the formation of putrid empyema and bronchial fistulas, Lilienthal touches, first with gauze and then with iodine tincture, the visceral and parietal pleuras of the normal lobes which limit the one on which lobectomy is going to be performed. Then the thorax is closed. A few days later the exudate which forms after thoracotomy is evacuated and lobectomy may be performed two weeks later. The speaker's statistics include forty resections with twenty-five fatal results (62.5 per cent). In twenty-seven cases the entire lobe or its pathologic portion was resected; death occurred in seventeen cases (63 per cent). In thirteen cases an adjacent lobe was also resected; death occurred in eight cases (60 per cent). Even with the high mortality following lobectomy, it is at present the only operation to which one can resort with reasonable hope.

Dr. Baumgartner of Paris is an advocate of bronchoscopic aspirations, both as a preparation for operation on the suppurative focus and to improve the general conditions of inoperable bronchiectatic patients. The only reliable treatment is that by which the focus is drained and the pathologic tissues are resected. In order to cause the complete disappearance of the focus the speaker advised "progressive pneumectomy," performing the fragmentary excision of pathologic lung tissues in several operations. Typical lobectomy should be reserved for bronchiectasis complicated with suppuration of the lung and also for either suppurative or nonsuppurative bronchiectasis when located in a lobe. The speaker described the technic of pneumectomy. In the first operation, by which he establishes the route of parietal approach to the pathologic area of the lung, he places around the pleura a small bundle of metallic threads which are going to serve as points of reference, to indicate in the following days, by means of the roentgen examination, whether or not the operative opening corresponds to the nearer point to the focus. These threads, after the operation, are held in place by the packing.

Dr. Ascoli of Rome stated that the older the chronic abscesses of the lung are, the more dangerous to operate. The mortality rate is 19 per cent among patients operated on before the sixth month of the evolution of the abscess, while it is 75 per cent among patients who have had the abscess for a long time. In unilobular and in multilobular abscesses, pneumotomy followed by drainage is indicated. In cases of chronic complicated suppurative conditions of the lung, only resection of the lung may be followed by recovery. Typical lobectomy is difficult and has so high a mortality rate that it should be done only in exceptional cases.

Dr. Coquelet of Brussels, in his paper, said that one should not intervene in suppuration of the lung before the fourth or sixth week of its evolution. The second month is the best time to operate. Pneumotomy is advisable when the suppurative focus is superficially located. Resection of the lung should be resorted to in diffused suppurations. The speaker advised the use of the so-called progressive fragmental pneumectomy.

Dr. M. Lagos of Barcelona advised bronchoscopic aspiration followed by intrapulmonary medication by means of intratracheal injections of liquid medicaments through a catheter placed in the main bronchus, according to García Vicente's method; also the extrapleural use of paraffin, which by promoting pleural adhesions makes more accessible the suppurative focus. In bronchiectasis without cavitation, collapse therapy gives good results; when cavitation is already present, one should resort to pneumectomy. One should resort to lobectomy only when dealing with patients in good general health and whose bronchiectatic lesions are restricted to one lobe.

Dr. Sauerbruch of Berlin said that his statistics show that of late operations on abscesses of the lung and on bronchiectasis have shown better results than those performed formerly. The better results are due to the preparation for the operation. He favors the formation of pleural adhesions in cases in which they are not already formed by means of the filling with paraffin. The operation should be performed not later than the fifth week. The speaker obtained recovery after thoracotomy in twelve patients with large central abscesses of the lung, and also in six patients with gangrene of the lung. The author stated that bronchiectasis is congenital in 80 per cent of the cases. His statistics include 623 cases of abscesses of the lung and 300 cases of bronchiectasis.

New Surgical Society

The Sociedad Española de Cirugía has recently been organized, thanks to the activities of Dr. Goyanes, former director of the Instituto del Cancer. The membership fees are rather high, the money going to publish a journal, the organ of the society. Members must have certain qualifications and attend a minimum number of meetings. This regulation aims to prevent the lack of attendance which has been observed in several medical societies of Madrid, whose members attend the meetings only when they are on the program. Even the presidents of medical societies rarely attend the meetings, thus making it necessary to name a substitute.

The Blind in Madrid

The civic authorities of Madrid recently gave to blind persons in Madrid 200 white canes, all alike, by means of which blind persons may be distinguished from normal pedestrians and walk with more safety in the streets.

Mr. I. Prieto, the minister of the treasury, obtained the passage of a bill by which blind employees of the treasury, when retiring, are to be pensioned with their entire salary instead of half of it, which is allowed others when retiring from duty.

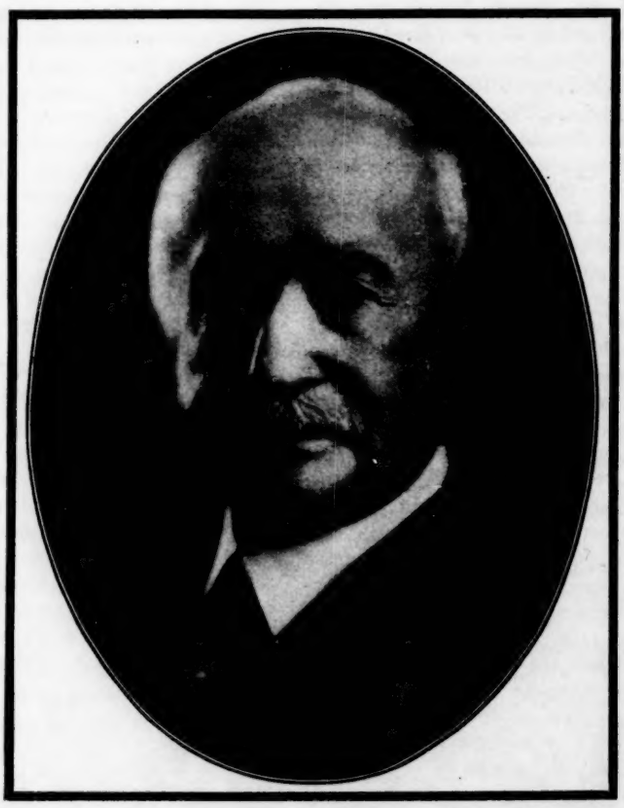
Change of Physicians at Public Health Resorts

For more than a century, there has been a body of physicians nominated by the government to supervise the sanitation of the health resorts in the provinces of Spain. Every health resort has had a physician director in charge of the sanitation and of the patients. Those physicians charged a small amount to every patient besides the salary paid to them by the government. Many of the patients who go to the health resorts have not had confidence in the physicians in charge. Perhaps that is one reason why the balnearies have not been attended by the public in the last few years. The minister of the interior has changed these physicians. The physicians in the locality to which the balneary belongs are going to take charge of the patients and of the sanitary problems of the health resorts.

Deaths

William Williams Keen ✠ President of the American Medical Association, 1900-1901, died, June 7, at his home in Philadelphia at the age of 95. He was the dean of American surgery and his repute was world-wide. Dr. Keen was born in Philadelphia, Jan. 19, 1837. He was graduated by Brown University in 1859 and received his M.D. degree from Jefferson Medical College, Philadelphia, in 1862. Honorary degrees were conferred on him by his Alma Mater, by Northwestern University, University of Toronto, Edinburgh University, Yale, St. Andrews, University of Pennsylvania, Upsala, Harvard and the University of Paris.

Dr. Keen was distinguished as a medical officer, a physician, a citizen and a socially minded man. He served his country in three wars, acting as assistant surgeon of the Fifth Massachusetts Regiment in 1861 and assistant surgeon in the United States Army from 1862 to 1864. In the Spanish-American War he was enrolled as a lieutenant in the medical corps. In the World War he was created major on April 16, 1917, and served until March 18, 1918. He was also during the World War a member of the National Research Council.



WILLIAM WILLIAMS KEEN, M.D., 1837-1932

After his service during the Civil War, he took up practice in Philadelphia, conducting the Philadelphia School of Anatomy from 1875 to 1876, at the same time acting as lecturer of pathologic anatomy at Jefferson Medical College. From 1876 to 1889 he was professor of artistic anatomy in the Pennsylvania Academy of Fine Arts, and from 1884 to 1889 professor of surgery in the Women's Medical College. Then he became professor of surgery in Jefferson Medical College, maintaining this position until 1907, when he became professor emeritus.

Dr. Keen was honored by numerous organizations in his specialty throughout the world. He was president of the American Surgical Association in 1899, Vice President of the American Medical Association in the same year, and the next year President. He presided at the International Congress of Surgery in Paris in 1920 and at the Congress of American Physicians and Surgeons in 1903. He had been elected a corresponding member of the Surgical Societies of France, Belgium and Italy, and he was an honorary fellow of the Royal College of Surgeons of England, Edinburgh and Ireland. His contributions to scientific research had gained for him numerous medals and awards, including the Bigelow medal of the Boston Surgical Society, the Colver-Rosenberger medal from Brown University, and the gold medal of the Pennsylvania Society of New York. Moreover, he had been awarded the Order of the Crown of Belgium in 1920 and of the Legion of Honor of France in 1923. From 1873 to the time of his death he was a fellow and trustee of Brown University.

Dr. Keen was a great surgeon and an exceptional surgical teacher. His contributions to the surgery of the brain, the spine and the nerves were recognized as of especial merit. As a surgeon he was physiologically minded. His earliest book was a work on "Reflex Paralysis and Gun-Shot Wounds" by himself and Dr. Morehouse, published in 1864. His other published works follow rapidly, including his "Clinical Charts," published in 1870; "A History of the Philadelphia School of Anatomy," in 1874; "A History of Practical Anatomy," in 1870; "A History of the First Baptist Church of Philadelphia," in 1898; "Surgical Complications and Sequels of Typhoid Fever," in 1898; a collection of "Addresses and Other Papers," in 1905; then came the publication of Keen's "System of Surgery" in eight volumes, which was repeatedly revised and which is still an established reference work in this field.

At this time Dr. Keen became especially interested in the necessity of combating the vicious attacks made by the antivivisectionists on scientific animal experimentation. He waged the battle of scientific medicine in this field almost to the hour of his death. His first series of papers on animal experimentation and medical progress was published in 1914. The Colver lectures at Brown University on human welfare were published in 1917 and his collected papers and addresses in 1922. In the meantime he continued his historical researches, printing a book on Brown University in 1914; "Selected Papers and Addresses," in 1916; "The Surgical Operations on President Cleveland," in 1917, and the book on the "Treatment of War Wounds," in 1917. Among his other accomplishments was the editing of Gray's "Anatomy" in 1887 and of the "American Text-Book of Surgery" in 1892 and 1903.

Dr. Keen was animated always by the highest ideals; he was a man of deep religious feeling. His two contributions to this field were a small book entitled "I Believe in God and Evolution," in 1922, and another entitled "Everlasting Life," published in 1924.

This brief record of the accomplishments of this extraordinary man is but an indication of the breadth of his interests and activities. Although fragile in frame and almost diminutive in stature, his intellect coupled with an extraordinary capacity for hard work brought him well merited leadership. He retired from active practice at the age of 70, saying "No man over 70 has the right to hold human lives in his hands." His gift for epigram and a simple spiritual philosophy of life gave rise to numerous statements, which were quoted both in medical and in lay literature throughout the world. His ambition to reach 100 years of age was thwarted by a failing heart, which incapacitated him and made him practically an invalid during the last three years of his life. Nevertheless he bore his retirement with fortitude and maintained practically to the moment of his death the dryly humorous attitude that made him thousands of friends during his many years. Many a man who achieves fame and who retires from active life at the age of 70 is forgotten until the time when obituaries are transcribed. Invalid that he was, the world continued to talk of Dr. Keen until the moment of his death, and his contributions to science and to life are likely to maintain his memory for many years to come.

Gordon Fay Willey ✠ Captain, U. S. Army, retired, Bedford Hills, N. Y.; University of Michigan Medical School, Ann Arbor, 1911; member of the Medical Society of the State of Pennsylvania and the American Psychiatric Association; served during the World War; entered the medical corps of the U. S. Army as a first lieutenant in 1917 and was retired for disability in line of duty in 1922; superintendent of the Bedford State Reformatory for Women; formerly superintendent of the Institution for Mentally Defective Women, Albion; aged 47; died, May 23, of self-inflicted gunshot wounds.

Arthur Hutchins Cilley ✠ New York; College of Physicians and Surgeons in the City of New York, 1896; assistant professor of clinical surgery, department of orthopedic surgery, and chief of clinic, Cornell University Medical College; member of the New Hampshire Medical Society and the American Orthopedic Society; fellow of the American College of Surgeons; consulting orthopedic surgeon to the Riverside and Reconstruction hospitals, New York, and the Nassau Hospital,

Mineola, N. Y.; aged 61; died, May 31, in the New York Hospital, of pneumonia.

Charles Albert Fairbanks, Dover, N. H.; Harvard University Medical School, Boston, 1877; member of the New Hampshire Medical Society; past president and secretary of the Strafford County Medical Society; formerly member and chairman of the school committee; formerly mayor of Dover and member of the state legislature; aged 83; died, April 30, in the Wentworth Hospital.

George Raymond Narrley, Keokuk, Iowa; St. Louis College of Physicians and Surgeons, 1909; member of the Iowa State Medical Society and the Associated Anesthetists of the United States and Canada; served during the World War; formerly on the staff of St. Joseph's Hospital; aged 53; died, May 8, at Rochester, Minn.

Sidney Storrs Hall, Minneapolis; Harvard University Medical School, Boston, 1867; an affiliate fellow of the American Medical Association; member and for many years treasurer of the State Medical Society of Wisconsin; aged 88; died, May 7, in the Eitel Hospital, of coronary arteriosclerosis and cholecystitis.

Anthony Huffaker ⊕ Carson City, Nev.; Cooper Medical College, San Francisco, 1890; past president of the Nevada State Medical Society; for many years on the staff of the Stanford University Hospital, San Francisco; aged 68; died, May 15, of heart disease.

Edgar A. P. Briney, Bloomfield, Mo.; Louisville (Ky.) Medical College, 1890; Kentucky School of Medicine, Louisville, 1890; Bellevue Hospital Medical College, New York, 1897; deputy state health commissioner; aged 71; died, April 27, of cerebral hemorrhage.

Thomas **Lenwood Bennett,** Palm Beach, Fla.; Northwestern Ohio Medical College, Toledo, 1889; member of the Associated Anesthetists of the United States and Canada; aged 63; died, May 9, in the Doctors Hospital, New York, of pulmonary embolism.

James **Giles Robinson Stone,** Windsor, Ont., Canada; University of Toronto Faculty of Medicine, Toronto, 1910; member of the Radiological Society of North America; served during the World War; aged 55; died, April 2, of heart disease.

James **Nelson Harrison,** Salt Lake City; Jefferson Medical College of Philadelphia, 1883; member of the Utah State Medical Association; aged 72; died, March 23, in the Holy Cross Hospital, of carcinoma of the liver and glands of the neck.

Andrew Jackson Faulk ⊕ Mitchell, Neb.; Sioux City (Iowa) College of Medicine, 1901; aged 74; died, April 16, in the West Nebraska Methodist Episcopal Hospital, Scottsbluff, of hypertrophy of the prostate and uremia.

Myron P. Robinson, Windsor Locks, Conn.; Yale University School of Medicine, New Haven, Conn., 1895; member of the Connecticut State Medical Society; aged 61; died suddenly, May 4, of cerebral hemorrhage.

John Robert Bruce Glasgow, Auburn, N. Y.; University of Buffalo (N. Y.) School of Medicine, 1898; member of the Medical Society of the State of New York; aged 58; was found dead in bed, May 4, of heart disease.

William H. Frazer, Taylorville, Ill.; St. Louis College of Physicians and Surgeons, 1894; member of the Illinois State Medical Society; aged 72; died, May 6, in St. Vincent's Hospital, of cerebral hemorrhage.

James Slaughter Steele, San Antonio, Texas; Vanderbilt University School of Medicine, Nashville, Tenn., 1892; member of the State Medical Association of Texas; aged 61; died, April 17, of pyelonephritis.

Charles Lyman Nichols, Chicago; Eclectic Medical Institute, Cincinnati, 1895; Rush Medical College, Chicago, 1898; member of the Illinois State Medical Society; aged 59; died, May 22, of angina pectoris.

James Edward Dolan, Buffalo; University of Buffalo School of Medicine, 1924; member of the Medical Society of the State of New York; aged 30; died, May 29, of chronic nephritis and hypertension.

B. Walne Watson, Pine Apple, Ala.; Tulane University of Louisiana Medical Department, New Orleans, 1886; aged 65; was accidentally drowned, May 9, when he fell into a creek.

George S. Patterson, Pattersonville, Ohio; Western Reserve University Medical Department, Cleveland, 1893; aged 64; died, May 10, in Lakewood, of carcinoma of the lungs.

William Francis Dugan, Campbell, Neb.; Illinois Medical College, Chicago, 1903; Lincoln Medical College of Cotner University, 1904; aged 51; died April 19, of heart disease.

Michael Uriah Robbins, New York; Harvard University Medical School, Boston, 1902; on the staff of the Mount Sinai Hospital; aged 56; died, May 5, of morphine poisoning.

Eduardo M. Castro, Mexicali, Baja California, Mexico; National University Faculty of Medicine, Mexico City, 1924; aged 34; died, April 8, of a self-inflicted bullet wound.

Worthington H. Osborne, Partridge, Kan.; College of Physicians and Surgeons of Kansas City, Mo., 1876; aged 83; died, March 16, at Hutchinson, of arteriosclerosis.

William Walter French, Fort Branch, Ind.; University of Virginia Department of Medicine, Charlottesville, 1879; aged 78; died, April 22, of paraplegia and cystitis.

Raymond Wale Meador, Irvington, Ky.; Hospital College of Medicine, Louisville, 1903; served during the World War; aged 52; died, April 18, of cerebral hemorrhage.

Harry B. Garrigues, Massillon, Ohio; Cleveland University of Medicine and Surgery, 1883; aged 79; died, May 7, as the result of an injury received in a fall.

Chalmers P. Woodruff, St. Louis; College of Physicians and Surgeons, Keokuk, Iowa, 1884; Civil War veteran; aged 89; died, May 5, of cerebral hemorrhage.

John Niess, Jr., Carmi, Ill.; St. Louis University School of Medicine, 1907; aged 52; died, May 14, in Belleville, of an overdose of lysol, self-administered.

William M. Ellis, Blooming Grove, Texas; Vanderbilt University School of Medicine, Nashville, Tenn., 1890; aged 67; died, May 8, of heart disease.

Edwin K. Statler, Jackson, Mo.; Barnes Medical College, St. Louis, 1904; aged 52; died, March 29, in Douglas, Ariz., of tuberculosis of the lungs.

James Nelson Rose, Hutchinson, Kan.; Memphis (Tenn.) Hospital Medical College, 1886; aged 75; died, May 18, at the Grace Hospital, of uremia.

Edward Frederick Menger, Marietta, Ohio; Medico-Chirurgical College of Philadelphia, 1909; aged 50; died, April 23.

John William Smoot, Fulton, Kan.; Rush Medical College, Chicago, 1891; aged 66; died, March 15, of chronic interstitial nephritis.

Frank J. Dawson, Piqua, Ohio; Columbus Medical College, 1881; aged 81; died, April 23, of aortic embolism and acute nephritis.

John Charles Fremont Hutton, Clermont, Fla.; Medical College of Ohio, Cincinnati, 1888; aged 71; died, April 25, of angina pectoris.

Joshua P. Beasley, Waldo, Ark.; Memphis (Tenn.) Hospital Medical College, 1895; aged 70; died, April 28, of cerebral hemorrhage.

William G. Dietz, Hazleton, Pa.; Hahnemann Medical College of Philadelphia, 1875; aged 83; died, in April, of pneumonia.

Walter Post, Bloomfield, N. J.; New York Homeopathic Medical College, 1899; aged 55; died, April 1, of coronary occlusion.

Isaac C. Edwards, Columbus, Ohio; Starling Medical College, Columbus, 1882; aged 78; died, May 17, of bronchial asthma.

Willis R. Littell ⊕ Cambridge City, Ind.; Medical College of Ohio, Cincinnati, 1894; aged 71; died, May 23, of heart disease.

Monroe Porter, Flint, Mich. (licensed, Michigan, 1900); aged 82; died, March 4, of bronchopneumonia.

Marriages

DELBERT T. SAFFER, Aldie, Va., to Miss Martha Garnett Gresham of Newport News, at Leesburg, May 15.

GEORGE RUSSELL MALONEY to Miss Emilie Littlepage Simmons, both of Richmond, Va., May 16.

LINDLEY V. SPRAGUE, Madison, Wis., to Miss Virginia Clement of Glen Ellyn, Ill., May 8.

HERBERT G. PFEIFFER to Miss Alma Ressmann, both of Fredericksburg, Texas, May 14.

VINCENT FARMER to Miss Augustine Lynch, both of Hackensack, N. J., May 21.

Bureau of Investigation

NEW LIFE CORPORATION FRAUD

T. J. Collier of Hot Springs, Ark., Debarred from the Mails

The New Life Corporation of Hot Springs, Ark., sometimes called New Life, Inc., sold an alleged sexual rejuvenating nostrum known as "New Life Gland Capsules." After investigation by the postal authorities, the business was declared fraudulent and denied the use of the mails.

According to a memorandum submitted to the Postmaster General by the Hon. Horace J. Donnelly, Solicitor for the Post Office Department, the New Life Corporation had for its president one Thomas J. Collier, for its vice-president Thomas J. Collier, Jr., and for its secretary and treasurer Mrs. Gossett Greer, the latter two persons being the son and daughter, respectively, of Thomas J. Collier. All of the stock was owned by Collier, Sr., except two shares held by his son and daughter.

The business consisted in the sale through the mails of New Life Gland Capsules, which were advertised under representations that, when used as directed and regardless of the age of the user or the cause of his condition, would quickly and permanently cure impotency and waning sexual power. It was also represented as being absolutely harmless and especially beneficial to sufferers from prostate gland trouble.

NEW LIFE
FOR MEN
NOW AVAILABLE
A Scientific Product of the 20th Century
WEAK, DISCOURAGED MEN MAY NOW BUBBLE OVER WITH RENEWED VITALITY AND STRENGTH
A REJUVENATOR-REVITALIZER — a body and system builder, be the age 29, 50 or 75. Regain self-confidence—be a REAL MAN.
NEW LIFE GLAND CAPSULES are an efficient mixed gland product, combined with stimulating tonics. No ill effects.
15 day course $3.00; 30 days course $5.00
BENEFIT OR MONEY BACK! Purchase price refunded if not definitely benefited within 10 days.—
You to Be the Sole Judge
Comes to you by parcel post in plain wrapper. Remit money order, check, or will send C.O.D.
New Life Corporation
Hot Springs National Park, Ark.

The advertising originally was done in newspapers, but later newspaper advertising was abandoned and circulars were substituted.

When the postal inspectors investigated the case, Collier is alleged to have advised them that his capsules contained orchitic, pituitary, thyroid and suprarenal substance. When the capsules were analyzed by the federal chemists, they were found to contain, in addition to the glandular matter, extract of nux vomica and probably powdered cantharides!

In April, 1932, the New Life Corporation and Collier were called on to show cause on May 5 why a fraud order should not be issued against them. Neither Collier nor any representatives of his appeared at the time set for the hearing, but a written answer to the charges was submitted by a firm of attorneys at Pine Bluff, Ark. Judge Donnelly, in his memorandum to the Postmaster General, reported that medical expert testimony showed that the preparation would not restore lost or waning sexual power to persons taking it and it was pointed out that impotency may be due to a variety of causes and obviously no one treatment could be successful. It was also brought out that the preparation would be of no value in prostate trouble, while there was possibility of harm in the drugs and glandular substances included in the capsules: Strychnine might tend to increase nervous irritability; thyroid substance is capable of doing considerable damage; and cantharides is a violent irritant.

The memorandum also brought out the fact that Collier is not a physician, chemist or pharmacist and employed no one having such qualifications. Collier informed the Post Office Inspector that he had a colored man whom he employed to take a preparation that was secured by him from the Home Products Company of Denver—another swindle against which a fraud order was issued in August, 1931. The Negro, according to Collier, was apparently benefited by the treatment, and Collier then went to St. Louis, where he procured some capsules and administered them to some of his colored employees. He then started to sell the preparation.

Judge Donnelly reported in his memorandum that the evidence showed the scheme to be one for obtaining money through the mails by false and fraudulent pretenses, representations and promises, and he recommended that a fraud order be issued against the New Life Corporation, New Life, Inc., and T. J. Collier. Such an order was issued on May 10, 1932.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

VITAMIN CONTENT OF PINEAPPLE JUICE — SUPPLY OF VITAMIN C

To the Editor:—What is the vitamin content of fresh and canned pineapple juice? Please suggest means of providing vitamin C, in sufficient quantities, for artificially fed infants who show an inability to take orange juice, grapefruit juice and tomato juice.

ARCHIBALD W. WARNOCK, M.D., San Pedro, Calif.

ANSWER.—The vitamin content of canned pineapple juice is only slightly less than that of fresh pineapple juice. Pineapple juice is a fair to good source of vitamin A and compares favorably with orange juice in this vitamin. The B content also compares favorably with that of citrus fruits. Pineapple is ranked as a good source of vitamin B. Pineapple juice is less potent than orange juice in vitamin C; 1.5 cc. is the protective dose for citrus fruits in vitamin C for guinea-pigs; 2.5 cc. is the protective dose for pineapple juice; 2.5 cc. of pineapple juice represents 9 Gm. of the whole fruit. The vitamin C content of canned pineapple juice is about five-sevenths that of fresh fruit.

Strawberries and tomatoes are about equally potent in vitamin C. This vitamin C content suffers no appreciable loss through canning by usual commercial methods. Raspberries, red and white currants and gooseberries are reported to contain vitamin C and retain their antiscorbutic qualities when canned. Ripe bananas are frequently used in infant feeding and are a good source of vitamin C. Raw bananas probably contain about one third as much vitamin C as oranges. The juice of the Swedish turnip rutabaga, obtained by filtering expressed juice of freshly grated pulp through a muslin bag, is rich in antiscorbutic content. This raw rutabaga juice is advocated by the English as an inexpensive source of vitamin C for infant feeding. Potatoes contain vitamin C, although in much less concentration than do oranges and tomatoes. Cabbage is an excellent source of vitamin C and compares favorably with citrus fruit juices; 1 cc. of freshly expressed cabbage juice is protective for guinea-pigs, whereas 1.5 cc. of orange juice is the protective dose. The vitamin C content of cabbage juice is readily destroyed by heating; of rutabaga juice less so, whereas the vitamin C content of orange juice is not readily destroyed by heat.

Certain of the canned comminuted vegetables which have been accepted by the Committee on Foods are guaranteed to contain vitamin C in slightly less potency than the raw vegetables.

POLLENS OF PENNSYLVANIA

To the Editor:—A man, aged 47, has attacks of asthma from May till the first frost. He lives here on the Allegheny plateau in Somerset County about 2,000 feet above sea level. He is a soft coal miner and lives in a mining town. He has no attacks in Harrisburg or in Brooklyn. The attacks are more severe at night when the dew is on the ground and the air is damp. The attacks are worse when it rains and worst immediately after rains. What are the possible causes? What pollens are found in this section of Pennsylvania? What pollens are found here and not around Harrisburg or Brooklyn? Please omit name and address.

M.D., Pennsylvania.

ANSWER.—With the meager details given, only the most general suggestions can be offered. Of the four diagnostic points, the geographic clue seems the least reliable as it involves so many considerations not subject to adequate control. The seasonal occurrence of symptoms points strongly to pollen, but it must be remembered that atmospheric concentration of pollen is low at night, and during and after it rains the air is almost or entirely pollen free. Also there is no single kind of pollen in Pennsylvania that could account for symptoms continuing from May until frost. Nevertheless, pollen should be given first consideration and careful skin tests should be made with all possible pollen offenders, including the late-blooming trees, the common grasses and all summer and fall hay fever weeds.

Other seasonal possibilities are seasonal foods, seasonal clothing, insects, insecticides and other contacts incidental to seasonal recreation and occupations. These would include animal emanations, pyrethrum, garden vegetables and fruits.

Walzer, in "Hay Fever and Asthma" (Springfield, Charles C. Thomas, 1931), says: "The etiology of purely seasonal attacks is not always obvious. A baffling type of case is that known as summer asthma, which, although constantly seasonal, seems to bear no relation to any known atopen or physical agent in the patient's environment."

No local field or atmospheric studies of hay fever pollen have been made in Somerset County. Both field studies and atmospheric pollen counts have been made at Pittsburgh, Philadelphia and New York. Only field observations have been made at Harrisburg.

There is little difference in the variety of hay fever plants found in these localities. Tree pollen is, of course, more common in Somerset County than in Brooklyn. Symptoms in the patient under consideration do not begin during the season of pollination of the earlier trees. The oaks, walnut and hickory are the principal trees pollinating in May. Hay fever grasses are much the same throughout Pennsylvania. Bluegrass is probably the most common offender in Somerset County. Its period of pollination is late May and June. Other grasses continue to furnish pollen until about the middle of July. During the latter half of July and the first week of August there is little pollen of any kind in the air. Toxic concentrations of ragweed pollen begin to appear on pollen slides in Pittsburgh, Philadelphia and New York soon after the 10th of August. The apex is reached about the first of September, and the season is practically over by the last week of September. During this time at least 95 per cent of the pollens found on the slides is from the common ragweeds. In a mining community it is not likely that there are large areas of cultivated ground, and it is quite possible that the ragweed pollen concentration is comparable to that encountered in the cities. There could be local intimate contacts with the pollen of other weeds than ragweed. A local study by a competent botanist would be advisable.

The potential hay fever pollens of southwestern Pennsylvania are as follows, the most important ones being marked with an asterisk:

Common Name	Botanic Name	Time of Pollination
Trees:		
Maple	Acer spp.	March–April
Alder	Alnus spp.	March–April
Hazelnut	Corylus americana	March
*Elm	Ulmus spp.	March
Hornbeam	Carpinus caroliniana	April
Ironwood	Ostrya virginiana	April
Birch	Betula spp.	April
Ash	Fraxinus spp.	May
*Oak	Quercus spp.	May
Walnut	Juglans nigra	May
Hickory	Hicoria spp.	May
Grasses:		
*Bluegrass (June grass)	Poa pratensis	May–June
Orchard grass	Dactylis glomerata	June
*Timothy	Phelum pratense	June–July
Redtop	Agrostis palustris	June–July
Corn	Zea mays	July–August
Weeds:		
Red sorrell	Rumex acetosella	May–June
English plantain	Plantago lanceolata	July–September
Pigweed	Amaranthus retroflexus	June–September
*Short ragweed	Ambrosia elatior	August–September
*Giant ragweed	Ambrosia trifida	August–September
Cocklebur	Xanthium commune	August–September

CIRCULATORY DISTURBANCES OF THE EXTREMITIES

To the Editor:—A man, aged 35, has had good health except for mitral regurgitation; his compensation is good. Whenever he walks to any extent, he complains of aching and cramping in the muscles of his legs. When this takes place, the legs often contract and he has acute pain. After the patient has rested for one or two hours, the condition disappears. Please advise what your diagnosis may be and whether myalgia could be a factor in the case. Please omit name.

M.D., Oklahoma.

ANSWER.—This description suggests intermittent claudication, which, however, must be considered as a symptom and not a disease. There is undoubtedly a neurocirculatory element underlying the condition, possibly located in the sympathetic nerve.

The aching and cramping should be considered danger signals that there is a disturbance of the neurocirculatory apparatus of the extremity. One would suggest that roentgenograms be made of the limbs in an attempt to demonstrate arteriosclerosis. The myalgia is undoubtedly secondary. The muscle hypertonicity and the neurocirculatory disturbance create a vicious circle.

In addition to roentgenograms of the legs, the patient should have a careful examination for mechanical defects of the feet, such as flatfoot and short achilles tendon.

The physician would do well to consult Buerger's book on Circulatory Disturbances of the Extremities (W. B. Saunders Company).

STROPHANTHUS AND DIGITALIS

To the Editor:—What is the relative danger of using strophanthus and digitalis? Is it as dangerous as textbooks would lead one to think? Most textbooks say it should not be repeated more than once in twenty-four hours and should be used with extreme caution if digitalis has been recently given. Solis-Cohen's Pharmacology recommends that, when digitalis is used for an extended period, it be tapered off and on with strophanthus. If a patient was seen with an acute heart failure and strophanthus was given once and still more medication should be needed, can you give me some idea as to the amount of digitalis that might be used with safety, provided, for example, it would take 20 cc. of digitalis to digitalize the patient? Kindly cite any literature.

DAVID MITCHELL BLUM, M.D., Des Moines, Iowa.

ANSWER.—Strophanthus, as such, has no legitimate place in the therapeutics of heart disease, because it is absorbed poorly and irregularly, and all its effects are produced more certainly and more safely by digitalis. There is no basis in fact for the statement in the textbook that it is necessary to alternate between digitalis and strophanthus when the former is used for an extended period of time, because the two drugs have the same kind of action on the heart. The content of some of the questions suggests that the inquiry refers to strophanthin or ouabain rather than to the crude drug strophanthus. Ouabain (crystalline strophanthin) has a limited field of usefulness, and this only in occasional cases of acute heart failure. In such cases, in which the patient is moribund, the total intravenous dose of ouabain may be regarded as 1 mg., provided the patient has not had digitalis within ten days, that dose being about equivalent to the total oral dose of 2 Gm. of digitalis, or 20 cc. of the tincture which is required to produce full digitalization. It would be fairly safe in a case such as that cited to give 0.5 mg. of ouabain intravenously at once, followed immediately by an oral dose of 5 cc. of tincture of digitalis. A dose of 5 cc. of the tincture might then be given every six to eight hours until the full therapeutic effects or minor toxic symptoms have been obtained. This technic is used for very rapid digitalization, and there are dangers involved in such doses; but, on the other hand, unless the patient is at the point of death there is rarely any justification for the intravenous use of strophanthin.

A study of the intravenous injection of ouabain in man is reported in a paper by Wyckoff and Goldring (*Arch. Int. Med.* **39**:448 [April] 1927). They give references to the literature.

SUBACUTE BACTERIAL ENDOCARDITIS

To the Editor:—A woman, aged 20, who had had articular rheumatism, chronic heart disease with valvular lesions and enlargement of the myocardium, contracted influenza about two months ago. The acute conditions subsided in three weeks, followed, after a short period, by a remittent fever, from 99 to 104 F. While the patient was rapidly losing weight, her skin assumed a café au lait hue, with rare punctiform petechiae on the skin and mucous membranes. In an institution, a diagnosis was made of subacute bacteremia; three consecutive blood cultures were found positive for Streptococcus viridans. The patient has been treated with parenteral blood injections, sodium salicylate, 4 Gm., in starchy enemas, digitalis, and codeine, with slight advantage. No use has been made of transfusion, bacteriophage vaccine or streptococcus serum because they have not been deemed of advantage. Is there any other treatment which could make the prognosis less fatal in this case? Is there any percentage of recovery? Kindly omit name.

M.D., New York.

ANSWER.—From the description of the case, of a woman of 20 with a history of rheumatic heart disease with a remittent fever for a month or more, associated with pallor, petechiae, and blood cultures positive for Streptococcus viridans, it would appear extremely likely, if not certain, that the patient is suffering from a subacute bacterial endocarditis. There are a few additional points that one would look for to amplify the diagnosis, such as hematuria, other embolic phenomena, enlargement of the spleen, and Osler nodes, but even without these, the diagnosis seems definitely established. Assuming that this is so this disease is well nigh uniformly fatal in spite of any and all treatment, although countless procedures have been recommended and tried. There have been a few cases observed by competent trained clinicians in which recovery has occurred, or at least remissions for a considerable period, going into years, but even in such instances these remissions or recovery are usually spontaneous in character and not, so far as current knowledge goes, due to any specific type of treatment.

PERSISTENT SINUS FOLLOWING DRAINAGE OF EMPYEMA

To the Editor:—One year ago I did first a closed and then later an open operation for empyema, which was caused, our hospital pathologist said, from gangrene of the lung. He based his diagnosis on the character of the aspirated fluid. The patient had a stormy convalescence but finally made a good recovery and has taken on considerable weight. He still has a sinus in the left posterior axillary region extending upward from about the tenth rib for 5 inches. Repeated roentgen examinations have failed to disclose any bronchial fistula, and injection of the sinus with iodized oil before roentgenography does not reveal any communicating sinuses, and there is no infection of the ends of the excised rib. This sinus is about the size of a number 22 French catheter and has so far resisted all efforts looking toward its closure. Lately it has been dressed every four days and each time a clean drainage tube about 3½ inches long inserted. It has been irrigated with iodine solution, permanganate solution, saline solution and surgical solution of chlorinated soda, and lately following the irrigation I have been injecting the sinus through the drainage tube with bismuth paste. I have also used at different times 1 per cent and stronger silver nitrate solution. The man is now in excellent health and for the past six months has been doing his full quota of work in an admistrative position. What have you to suggest looking toward the closure of this sinus other than the radical operation? Please omit name. M.D., Wisconsin.

ANSWER.—The common causes of a persistent sinus following drainage in empyema are bronchial fistula, osteomyelitis of resected rib stumps, and a foreign body, such as a sequestrum from a rib stump. The failure to demonstrate a fistula by the roentgenogram following injection of contrast mediums does not exclude the possibility of a small sinus capable of keeping up enough infection to prevent healing. The history of a severe pulmonary infection at the onset of the illness is consistent with the development of a bronchial fistula.

Since the fistula has failed to heal following the use of conservative measures, a radical operation involving the unroofing of the sinus from its source to the outlet is indicated.

TOXIC EFFECTS OF ARSPHENAMINES

To the Editor:—I have read with the greatest interest an excellent paper on the toxic effects of the arsphenamines and wish to congratulate the author on the efficient manner in which he has dealt with this difficult problem. I would like to ask, however, whether any of the six deaths of hemorrhagic encephalitis recorded among 78,350 injections have occurred immediately after or not later than half an hour after the injection. A case, which I have heard about recently, occurred one and one-half hours later, but no autopsy could be performed by the physician. It would be rather difficult to explain it by a nitritoid crisis and vascular shock. As far as I know, no pathologic changes had been found before the injection (urine, temperature) and the dose of 0.3 Gm. had been well tolerated before. C. M. HASSELMANN, M.D., Manila, P. I.

ANSWER.—It is difficult to answer this question, because of insufficient data concerning the stage of the disease, the type of syphilitic involvement, and the number of doses of arsenicals already given. The history of a sudden death sounds rather suggestive of a hemorrhagic encephalitis, however. Ordinarily these cases come early in the course of the treatment of syphilis. The usual picture is that of a fresh syphilis in which the patient has been given two or three or more injections of the arsenicals. Following the last dose, within a period of twenty-four to thirty-six hours, the patient is taken with symptoms of headache, dizziness and vomiting. The picture quickly goes on to that of unconsciousness, stiffness of the neck, and even opisthotonos. If a lumbar puncture is done, the fluid is found to be under high pressure and there may be an increased cell count. As a rule, death ensues within forty-eight to seventy-two hours.

PHOSPHATURIA IN DIABETIC PATIENT

To the Editor:—1. Is "phosphatic diabetes" generally admitted to be a type of diabetes? If so, what treatment is recommended for the phosphaturia? 2. In arranging a diet for a diabetic patient is there a decided advantage in distributing the carbohydrate allowance beyond three or four meals daily? H. S. SMYTHE, M.D., Bristol, Tenn.

ANSWER.—1. Phosphaturia is a common enough condition and is usually of no particular significance. It is thought that there is a relation between phosphaturia and the activity of the nervous system. The term "phosphatic diabetes" is used for a comparatively rare illness the symptoms of which are polyuria, thirst, emaciation, and a great increase in the excretion of phosphates, which rise to as much as from 7 to 9 Gm. a day. Not much is known about the latter condition. The treatment for phosphaturia is a combination of measures directed toward stabilization of the nervous system and correction of dietary errors. A plentiful supply of water should be used.

2. In arranging a diet for a diabetic patient the distribution of the carbohydrate allowance is best determined by a fractional analysis of the urine. It is well known that diabetic patients do not all behave in the same manner regarding the sugar output. In one patient the main excretion of sugar will be early in the morning and in another patient it will be late in the day. Activity and exercise apparently help some diabetic patients to utilize sugar. On the other hand, rest has the same effect on others. It is obvious that the distribution of the carbohydrate is a matter for individual determination.

HIGH DIASTOLIC-LOW PULSE PRESSURE

To the Editor:—Will you kindly give me the latest information on treatment and the interpretation of a high diastolic and a low pulse pressure. I am greatly concerned over my own pressure, which registers constantly systolic from 135 to 150 and diastolic from 110 to 122. The pulse pressure ranges from 25 to 28 and the pulse rate from 80 to 95. Please omit name. M.D., Texas.

ANSWER.—The interpretation of the high diastolic-low pulse pressure requires further study. More data are needed, particularly along the lines of kidney function, age of patient and habits. A persistent diastolic pressure between 110 and 122 is likely to indicate some disturbance of renal function. Usually this disturbance indicates a disease of the renal-vascular system. Information on treatment is not advisable until the additional data are determined.

ORTHODONTIA

To the Editor:—I have under my observation a girl, now 14 years of age, who has worn orthodontia appliances for a period of two years under the rigid supervision of an expert in that field, and the result obtained, so far as the alinement of the teeth is concerned, is excellent and all that one might expect. Is it possible for this treatment to cause an arrested growth of the mandible, causing the facial appearance of a retreating chin? This condition is now present; it was not in earlier life, nor is it a family characteristic. Kindly omit name. M.D., Utah.

ANSWER.—In the development of malocclusions it often happens that between the ages of 8 and 14 the mandible fails to develop in proportion to the maxilla, probably because of improper function and improper distribution of mechanical forces through occlusion. In many of these cases the alinement of the teeth in the separate arches is quite perfect. The conditions described are not uncommon in the development of the malocclusion, but probably they could not be produced as the result of treatment. If the treatment is related to the condition, it is because the developing malocclusion has not been corrected. In general, orthodontic treatment stimulates growth and in most orthodontic cases the condition to be overcome is one of underdevelopment. It sometimes happens that overdevelopment of the maxilla as a result of treatment gives the appearance of underdevelopment to a normal mandible. The first important consideration to be noted in such a case is the occlusal relation of the teeth, including the relation of their long axes.

IMMUNIZATION TO DIPHTHERIA

To the Editor:—A graduate nurse, aged 22, had one course of toxin-antitoxin in 1922, a second course in 1930, and one course (four doses of toxoid) in 1931-1932 (completed, Jan. 6, 1932). Schick tests after each of these courses were markedly positive. The last Schick test was made, April 1, 1932. Can you suggest any method of immunization in this case? H. O. POPE, M.D., Latham, Ill.

ANSWER.—If a retest remains positive, further immunization with diphtheria toxoid should be carried out, beginning with 0.1 cc. of toxoid and increasing the doses at weekly intervals as follows: second dose, 0.25 cc.; third dose, 0.5 cc.; fourth dose, 1 cc.; fifth dose, 1.5 cc. The retest might then be made two weeks after the fifth dose.

CHONDRODYSTROPHIA FETALIS, OR ACHONDROPLASIA

To the Editor:—For the satisfaction of a mother who is heart broken over a child of which I delivered her with the condition known as chondrodystrophy or achondroplasia, I should like you to let me know whether or not any means of therapy has been successful. M.D., Toronto.

ANSWER.—There is a definite glandular type of chondrodystrophy or achondroplasia, but no one has proved whether the relationship is one of cause and effect or coincidence. There is no harm in well regulated glandular therapy in this condition. The subject is fully discussed in an article by Philip Lewin and Edward L. Jenkinson in the *American Journal of Roentgenology and Radium Therapy* **11**:155 (Feb.) 1924. That article also provides a bibliography.

RAYNAUD'S DISEASE

To the Editor:—On exposure to cold the fingers of a woman, aged 23, single, and otherwise in good physical condition, become white and numb; the area of discoloration involves the two distal phalanges of the fingers of each hand. This trouble began about two years ago in the right hand but now has involved both hands, and of late posture, that is, holding the hand aloft, as when reading a paper, produces the same phenomena. Blood examination, the Kahn test and urinalyses are all negative. The blood pressure is 100 systolic and 60 diastolic; the pulse is 70; the basal metabolic rate is 0 per cent. Chemical examination of the blood revealed creatinine, 1.8 mg.; urea nitrogen, 15.4 mg.; urea, 32.7 mg. A roentgenogram of the chest did not reveal any pathologic changes. I would appreciate any suggestions that you might have for the treatment or advice in regard to further investigation as to the diagnosis. I have thought of a possibility of an early stage of Raynaud's disease.

RICHARD K. COLLINS, M.D., Aurora, Ill.

ANSWER.—The clinical picture in this case is that of early Raynaud's disease. There is no satisfactory medical treatment although many patients are benefited by a change of climate especially if they can be transferred from a section of the country in which the weather is cold and damp to a section where the air is warm and dry. The more advanced cases of Raynaud's disease are being successfully treated by the surgical removal of sympathetic ganglions. In the early cases in which there is a great deal of discomfort and partial disability the operation should be considered.

EXCESSIVE DRYNESS OF SKIN

To the Editor:—A white man, aged 29, a decided blond, weighing 165 pounds (75 Kg.) and 5 feet 11½ inches (180 cm.) in height, apparently in good health, complains of excessive dryness of the skin. He states that this condition has existed for several years. Once or twice during a year the outer layers of the skin of the hands and feet "peel off" in small areas. His hair is exceedingly dry. During the summer months he has profuse perspiration of the feet, hands and face and practically no perspiration of the rest of his body. Physical examination reveals no abnormalities other than confirmation of the symptoms described. A high fat content diet apparently has no beneficial effects. I would appreciate any information as to etiology and treatment. Please omit name.

M.D., Kentucky.

ANSWER.—Excessive dryness of the skin may be hereditary or acquired. If hereditary, it may represent a first degree ichthyosis or xeroderma. Treatment for this condition is purely palliative. Inunctions with oil of theobroma (cacao butter) or any bland fat may be prescribed. An acquired dryness of the skin and hair may be of hypothyroid origin. A basal metabolism test would give valuable information on this point. If the reading is low, small doses of thyroid would be indicated.

OPTIC ATROPHY AFTER TRYPARSAMIDE

To the Editor:—A man, aged 54, who has had syphilis since he was 17 years old, came to me complaining about total blindness. Six months previously he had a siege of severe shooting pains in his legs; a local physician administered tryparsamide intravenously, 2 Gm. once a week for six weeks. The patient complained after the second injection that his eyes grew dim. He claimed that his vision was good with the use of glasses. After the sixth injection he discovered that he could not see with his right eye, so he discontinued the treatment. The pain gradually disappeared, and at the same time the left eye became dimmer and dimmer, until he became totally blind. There has been no history of pain in the eyes. Ophthalmoscopic examination shows pallor of the disk, with an apparently normal fundus in the left eye. The right eye shows a moderate degree of atrophy of the optic nerve, with a normal fundus. The left eye is able to recognize light. Is there any antidote for tryparsamide? Any treatment you can recommend for this patient will be gratefully received. Please omit name.

M.D., California.

ANSWER.—Unfortunately, there is nothing known to ophthalmologic science that can restore vision in optic atrophy. The destructive effects of the tryparsamide persist long after the drug has been completely eliminated from the body, and consequently eliminative treatment would be useless.

BRUSHLESS SHAVING CREAMS

To the Editor:—Please advise through THE JOURNAL as to the safety of the brushless shaving creams now on the market. I refer particularly to Barbasol, Barmami and similar types of soaps. Will the continuous use of these have any serious effect on the nervous system or skin? Please omit name.

M.D., Utah.

ANSWER.—Brushless shaving creams as a type are essentially mixtures of potassium stearate soap, unsaponified stearic acid, glycerin and water. From 25 to 50 per cent of the stearic acid is saponified, the other 75 to 50 per cent being free. In the formation of the soap there is a certain amount of glycerin liberated. The stearic acid is slightly irritating and occasionally it is found that these soaps irritate the skin, but as a rule they do no harm.

Council on Medical Education and Hospitals

COMING EXAMINATIONS

ALABAMA: Montgomery, July 11. Sec., Dr. J. N. Baker, 519 Dexter Ave., Montgomery.

AMERICAN BOARD FOR OPHTHALMIC EXAMINATIONS: Montreal, Sept. 19. Sec., Dr. William H. Wilder, 122 S. Michigan Ave., Chicago.

AMERICAN BOARD OF OTOLARYNGOLOGY: Montreal, Sept. 17. Sec., Dr. W. P. Wherry, 1500 Medical Arts Bldg., Omaha.

ARIZONA: Phoenix, July 5-6. Sec., Dr. B. M. Berger, 12 North Central Ave., Phoenix.

CALIFORNIA: San Francisco, July 11-14. Sec., Dr. Charles B. Pinkham, 420 State Office Bldg., Sacramento.

COLORADO: Denver, July 5. Sec., Dr. Wm. Whitridge Williams, 422 State Office Bldg., Denver.

CONNECTICUT: *Regular.* Hartford, July 12-13. *Endorsement.* July 26. Sec., Dr. Thomas P. Murdock, 147 W. Main St., Meriden. *Homeopathic.* New Haven, July 12. Sec., Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven.

DISTRICT OF COLUMBIA: *Basic Science.* Washington, June 29-30. *Regular.* Washington, July 11-12. Sec., Dr. W. C. Fowler, 203 District Bldg., Washington.

HAWAII: Honolulu, July 11-14. Sec., Dr. James A. Morgan, Room 48 Young Bldg., Honolulu.

ILLINOIS: Chicago, June 28-July 1. Supt., Mr. Paul B. Johnson, Springfield.

MAINE: Augusta, July 5-6. Sec., Dr. Adam P. Leighton, Jr., 192 State St., Portland.

MASSACHUSETTS: Boston, July 12-14. Sec., Dr. Stephen Rushmore, 144 State House, Boston.

MISSISSIPPI: Jackson, June 28-29. Asst. Sec., Dr. R. N. Whitfield, Jackson.

NATIONAL BOARD OF MEDICAL EXAMINERS: Examinations in Parts I and II will be held at all centers where there are five or more candidates, but not at Durham, Minneapolis, nor New Haven, June 27-29. Ex. Sec., Mr. Everett S. Elwood, 225 South 15th St., Philadelphia.

NEW YORK: Albany, Buffalo, New York, Syracuse, June 27-30. Chief, Professional Examinations Bureau, Mr. Herbert J. Hamilton, Room 315 State Education Bldg., Albany.

NORTH DAKOTA: Grand Forks, July 5-8. Sec., Dr. G. M. Williamson, Grand Forks.

OREGON: Portland, July 5-7. Sec., Dr. C. J. McCusker, 1014 Medical Dental Bldg., Portland.

PENNSYLVANIA: Philadelphia and Pittsburgh, July 5-9. Sec., Mr. Charles D. Koch, Dept. of Public Instruction, Harrisburg.

RHODE ISLAND: Providence, July 7-8. Dir., Dr. Lester A. Round, 319 State Office Bldg., Providence.

SOUTH CAROLINA: Columbia, June 28. Sec., Dr. A. Earle Boozer, 505 Saluda Ave., Columbia.

SOUTH DAKOTA: Waubay, July 19. Dir., Dr. H. R. Kenaston, Bonesteel.

UTAH: Salt Lake City, July 6-8. Dir., Mr. S. W. Golding, 326 State Capitol Bldg., Salt Lake City.

WASHINGTON: *Basic Science.* Seattle, July 7-8. *Regular.* Seattle, July 11-12. Dir., Mr. Charles Maybury, Olympia.

WEST VIRGINIA: Harpers Ferry, July 12. Sec., Dr. W. T. Henshaw, State Health Dept., Charleston.

WISCONSIN: Milwaukee, June 28-30. Sec., Dr. Robert E. Flynn, 315 State Bank Bldg., LaCrosse.

Arizona April Report

Dr. B. M. Berger, secretary, Arizona Board of Medical Examiners, reports the written examination held at Phoenix, April 5-6, 1932. The examination covered 10 subjects and included 100 questions. An average of 75 per cent was required to pass. Six candidates were examined, all of whom passed. Five physicians were licensed by reciprocity with other states. The following colleges were represented:

PASSED	Year Grad.	Per Cent
University of Arkansas School of Medicine	(1928)	83.1
Rush Medical College	(1931)*	82.6
University of Louisville School of Medicine	(1928)	81.4
Tulane University of Louisiana School of Medicine	(1928)	91.7
Osteopaths		75, 79.5

LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Chicago Physio-Medical College	(1898)	Arkansas
Starling-Ohio Medical College	(1907)	Ohio
Jefferson Medical College of Philadelphia	(1908)	Utah
University of Pennsylvania School of Medicine	(1920)	Penna.
University of Nashville Medical Department	(1905)	Tennessee

* This applicant has completed his medical course and will receive his M.D. degree and license on completion of an internship.

New Mexico April Report

Dr. P. G. Cornish, Jr., secretary, New Mexico Board of Medical Examiners, reports the written examination held at Santa Fe, April 11-12, 1932. The examination covered 12 subjects and included 100 questions. An average of 75 per cent was required to pass. Three candidates were examined, all of

whom passed. Seven physicians were licensed by endorsement. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent
Tulane University of Louisiana School of Medicine	(1930)	90
St. Louis University School of Medicine	(1927)	89
Medical Military School, Mexico	(1927)*	86

LICENSED BY ENDORSEMENT

College	Year Grad.	Endorsement of
University of Alabama School of Medicine	(1917)	Mississippi
Medical Dept. of the Univ. of Southern California	(1915)	California
Loyola University School of Medicine	(1928)	S. Dakota
University of Minnesota Medical School	(1929)	Minnesota
St. Louis University School of Medicine	(1929)	Missouri
John A. Creighton Medical College	(1902)	Nebraska
Southern Methodist Univ. Medical Dept., Dallas	(1912)	Texas

* Verification of graduation in process.

Book Notices

Surgical Pathology of the Female Generative Organs. By Arthur E. Hertzler, M.D., Surgeon to the Agnes Hertzler Memorial Hospital, Halstead, Kansas. Cloth. Price, $5. Pp. 346, with 285 illustrations. Philadelphia: J. B. Lippincott Company, 1932.

Pathologists, gynecologists and general surgeons should secure a copy of this book, for it is a real treat. This is to be expected because the author is not only an experienced surgeon but also an excellent pathologist. The book is based on Hertzler's own rich experience in surgical gynecology and his innumerable gross and microscopic preparations. It represents one of a series of ten books by the author on various branches of pathology. The illustrations are unsurpassable for their beauty and clearness, and they form a veritable atlas of all the pathologic occurrences in gynecology. The book is divided into three main sections, the first of which is devoted to the external genitalia, the second to the tubes and ovaries, and the third to the uterus. Literature is added at the end of each chapter, but instead of being simply a list of references there are selected brief abstracts of various articles and interesting comments by Hertzler. Unfortunately the literature is not as complete or as down to date as it could be. A minor error is the use of the term tubercular salpingitis for tuberculous salpingitis. There is no description or illustration of granuloma inguinale, although there is a description of the condition known by the name of esthiomene. Contrary to most pathologists and gynecologists, Hertzler considers the majority of Krukenberg tumors of the ovaries as primary tumors in these organs. Likewise, whereas most authorities divide carcinomas of the cervix into two histologic groups, the author mentions three groups: the Krompecher-like spindle cell, the squamous cell and the adenocarcinoma. The text is written in a delightful and unique style, with frequent humorous and sarcastic interpolations. The author is most conservative in all his recommendations, and his attitude may help to stem the present-day tide of unnecessary operations. This book should be carefully studied by every one interested in gynecologic pathology.

Die physiologische Chemie der Geburt. Von Dr. med. Heinz Siedentopf, Privatdozent für Geburtshilfe und Gynäkologie an der Universität Leipzig. Paper. Price, 12 marks. Pp. 130. Leipzig: Johann Ambrosius Barth, 1932.

During the last few years a great deal of work has been done in the field of physiologic chemistry as applied to medicine. The author of this monograph chose a limited field; namely, the physiologic chemistry of labor. For his material he used not only his own extensive observations but also the vast literature on the subject. From the point of view of physiologic chemistry, labor cannot be considered as a single process. Research in this field indicates that labor must be divided into four parts: (1) the period of dilatation, (2) the major portion of the second stage, (3) the actual expulsion of the child, and (4) the placental stage. For each of these four periods, distinct and characteristic physical-chemical alterations take place in the blood. These changes and their causes are described in detail. The author also discusses the changes that occur during the puerperium. The monograph is well written and contains all the present-day knowledge about the subject discussed in it. The references are listed at the bottom of each page, which is a much more satisfactory arrangement than having all the references grouped at the end of each chapter or at the end of the book. The monograph is well worth reading and keeping as a reference book.

Anesthetics: Their Relative Values and Dangers. By Albert H. Miller, M.D. Fiske Fund Prize Essay, No. LXVI. Cloth. Price, $2. Pp. 51. Providence: Fiske Fund Essay, 1931.

The trustees of the Fiske Fund awarded a "premium" of $200 to the author for this essay, which cannot be recommended to any one because of its lack of factual material, which certainly ought to be presented if the reader is to be convinced of the relative dangers (and values) of the various anesthetics discussed. It would even appear that the author lacks personal or even reading knowledge concerning the subject matter of his monograph. Deaths from ether are given as 1 in 7,706 and again as 1 in 4,884; deaths under nitrous oxide and oxygen as 1 in 12,195; deaths under ethylene and oxygen as 1 in 332,721. And still the author writes on page 17 about ether: "Any other anesthetic agent, used in the careless manner which has characterized the administration of ether, would have resulted in so many fatalities that its use would long since have been abolished." The author might have found out on inquiry that there are approximately 100 ether explosions a year (unreported) and that the nitrous oxide-oxygen-ether mixtures commonly employed are as explosive as ethylene. The most recently reported case of a nitrous oxide-oxygen-ether explosion led to a law suit because of the death of the patient. The possibility of such instances are not even mentioned, whereas the reported cases of ethylene explosions are given prominence. One might even wonder whether the author has ever smelled ethylene gas, which he states has a "rather foul odor." The monograph fulfils no want, is inaccurate, was compiled on the basis of a limited survey of the literature, and lacks critical and unprejudiced evaluation of the subject matter.

Entstehung, Erkennung und Behandlung Innerer Krankheiten. Band II: Die Erkennung innerer Krankheiten. Von Dr. Ludolf Krehl. Paper. Price, 12.80 marks. Pp. 172. Berlin: F. C. W. Vogel, 1931.

This book on diagnosis is the second part of the author's treatise on internal medicine. Like the first, it has its own concluding index. The first volume was reviewed in THE JOURNAL, June 27, 1931. Presumably the next volume will be on treatment and complete the undertaking. The first volume was simply the thirteenth revision of the author's "Pathologische Physiologie," one of the most authoritative works in this important field. Several editions published in English are familiar as Krehl's Clinical Pathology. It is quite apparent that the author aims at something altogether unlike the usual textbooks on practice, in which diseases are first grouped and then described separately. The second volume, like the first, is a philosophical discussion of principles. Treatment will probably be dealt with from a similar point of view. From these new supplements on diagnosis and treatment it is unreasonable to expect comforting impressions of finality, such as are imparted by the older "Pathologische Physiologie," with its many revisions and maturity. For a time, at least, the completed work may possess some features of disparity. Suggestions of such an outcome are contained in Krehl's frank expression of disappointment with this volume on diagnosis, his inability to confine it to principles as he had hoped to do, its overemphasis on special diagnosis, its incompleteness in both respects. He states, however, that these have happened naturally, for the author not only writes the book but is himself written by the book.

Handicraft and technology of diagnosis are not described. They are found in such works as the Taschenbuch der medizinisch-klinischen Diagnostik, by F. von Müller, edition 26, 1930, and the Grundriss der klinischen Diagnostik, by G. Klemperer, 1929. For such manuals of methods this volume on diagnosis is a supplement; for more extensive works, such as the Lehrbuch der Differentialdiagnose innerer Krankheiten, by Matthes, edition 6, 1929, it is an introduction. The first chapter is occupied with the physician, diagnosis as an abstract act of intelligence, and the critical deliberations that follow diagnosis. Symptoms are results of the failure of certain functions to operate normally, or consequences of efforts to compensate for such failures. In estimating the importance of symptoms, this double origin must be kept in mind. Praise is given to the

medical alertness of recent years leading to the discovery of attacks of many infectious diseases so mild that they have been previously altogether overlooked, attacks that nevertheless confer immunity. Causes of disease remain more or less constant, but the way the body reacts is more varied than one would expect, with pathology regarded as a biologic science. The physician must see the disease as the patient sees it, from within. In no other way can he behave humanely and understand the profound modifications organic disease sustains from psychic processes. The physician is affected no less than the patient by the relation between them, a state comparable to modern ideas in physics of relations between observer and the object observed. The physician must be a friend of his patient. The entire life of the patient may be modified by such an influence.

In discussing differences that may arise between them as to what is health and what disease, the author is plainly anxious over the demands made on physicians as *kassenärzte*. He predicts that more definite views will be obtained of the amount of disease compatible with steady industrial employment, but he regrets limiting the activities of physicians to returning patients to their occupations. He refers to *kassenärzte* as officers of society with a flavor of physician, and points out how all the complicated difficulties involved melt away when a return is made to the primitive ties that should exist between physician and patient. He believes that health and illness genealogies should be more accessible to aid in obtaining histories, and recommends using methods of psychoanalysis when they are indicated. But he is emphatic in his views as to the harm done by unnecessary psychoanalytic methods used on persons of fine organization and insists that many perish because their organic disease is aggravated by psychic influences. He laments the recent appearance of specialists interested only in psychic conditions, who not only neglect physical states but belittle their importance. The manner in which disease affects the patient's mental attitude is of vast importance. A patient laboring with anxiety and without hope is already half lost. In a brilliant discussion of the art of medicine, or the physician as an artist, Krehl discusses the manner of applying to the patient, as an individual sample of humanity, what the physician as a clinician and scientist has ascertained of the etiology, pathogenesis, morphology and disturbed functions of the malady in hand.

This double rôle of investigator and sympathetic mitigator of, or deliverer from, human illness is not the physician's only embarrassment. A diagnosis must be made and names are temporary. Names of diseases go back to demons, but disease is not an entity encountered like a robber in the dark. It is a reaction of the body to external and internal influences. To regard diagnosis as an end fetters investigation, but diagnosis returns as often as attempts are made to dispense with it. Thoughtful physicians are therefore continually laboring to make use of diagnoses as points of approach, and, at the same time, to remember that they are but transient structures to be dismantled by progress. Such random statements as these illustrate the trend of Krehl's meditations in this first chapter. To appreciate his full comprehension of the essentials of diagnosis, or to enjoy the vigor of his language, the chapter must be read as it is now, in German.

Sage reflections are continued in the second chapter, on examination of the patient. Not all disease is organ disease in the Morgagni-Virchow sense. Many diseases affect each cell in the body, some provoking them at times to allergistic reactions. Physicians should not be carried away by single symptoms; a general and basic impression should first be secured, matters of external appearance, color, general nourishment, and expression. A severely critical attitude should be maintained with regard to the results of all examinations the physician has not personally made, roentgenologic and bacteriologic examinations, tests for immune bodies, and so on, for mistakes may occur in handling and registering material and in recording results of examinations. In the succeeding chapters dealing with fever, infectious diseases, blood, circulation, respiration, digestion, kidneys and urinary organs, nervous system, muscles and bones, the author's insight and erudition are fully displayed. To mention briefly the topics in any one of these chapters will suffice to indicate their scope and character. In that on respiration, for example, he asks: Is the illness due to lung disease? Pulmonary disorders are observed with a vast number of diseases of other structures, notably the heart. A large part of the circulation of the blood takes place in the lungs. Close watch should be kept of the bronchi and lungs in all infectious diseases and in those of old age; the form, depth, rhythm, and frequency of respiration noted; cough, sputum and cyanosis attentively examined. Dyspnea may be inspiratory or expiratory; each demands separate, special study. In praise of the value of roentgen examination of the lungs and the use of iodized oil, the author jokingly recalls the friendly but skeptical help he received from E. L. Wagner in 1886 when, as his assistant, he tried and failed to diagram by physical examinations the involvement of the lungs in patients with phthisis. He asserts that the depth to which percussion and auscultation are effectual is only about 7 cm. Valuable instructions are given concerning the diagnosis of the pneumonias, asthma, pulmonary emphysema, pneumothorax, tumors and other diseases of the pleura and mediastinum; also concerning the use of sedimentation tests to help determine whether pulmonary tuberculosis is acute or chronic.

Enumeration of the diseases touched on in the final chapter would resemble a table of contents for a textbook on neurology. A similar statement applies, in varying degrees, to many other chapters. No attempt is made to expound the diagnosis of any disease formally or exhaustively. Not only is the effort to adhere to principles discerned only by years of experience prevalent throughout the book, but the success with which this has been maintained—in spite of Krehl's disparaging comment in the preface—is its crowning and unique achievement.

United States Army X-Ray Manual. Edited by Lt. Col. H. C. Pillsbury, M. C., U. S. A. Authorized by the Surgeon-General of the Army. Second edition. Fabrikoid. Price, $5. Pp. 482, with 228 illustrations. New York: Paul B. Hoeber, Inc., 1932.

While this is marked as an army manual by the inclusion of material relating to the localization and extraction of foreign bodies, there is really no definite line of division between the practice of roentgenology in military and in civil life, and the work may well serve as an elementary or introductory textbook for any one starting out in the study of roentgenology. The descriptions of apparatus and x-ray physics are given as briefly as possible in view of the needs of military instruction (for the military radiologist in time of war must have enough practical knowledge of the construction of his instruments to keep them in running order); but it does not come amiss to the civil radiologist to have such information at hand in ready reference form. Physics and apparatus are described in 103 pages, dangers, means of protection and experimental considerations in 25, technical details in 60, foreign bodies in 20, and diagnosis in 250. No space is allotted to therapy, as an adequate description is beyond the scope of a work of this size. Teachers of roentgenology will find this concise work useful for class instruction. The text is carefully prepared, readable, and in conformity with the latest conceptions of roentgenologic pathology.

Ergot and Ergotism: A Monograph Based on the Dohme Lectures Delivered in Johns Hopkins University, Baltimore. By George Barger, F.R.S., Professor of Chemistry in Relation to Medicine in the University of Edinburgh. Cloth. Price, 15/-. Pp. 279, with 41 illustrations. Edinburgh: Oliver & Boyd; London: Gurney & Jackson, 1931.

This valuable monograph, an amplification of the "Dohme Lectures" delivered by the author at Johns Hopkins University, is the result of more than twenty years of research and study. An interesting chapter on the history of ergot precedes a scholarly exposition of ergotism. Rather startling is Barger's tentative conclusion that vitamin A deficiency is the predisposing factor in convulsive ergotism, a theory suggested by Edward Mellanby's observations on dogs and the peculiar distribution of this form of ergotism, which almost never occurs in France, a land rich in dairy products, but does occur in districts of Germany where the reverse is the case, and also in families deprived of milk and butter. A satisfactory chapter on the botony of ergot contains, among other things, the matter of the control of ergotism by agricultural and other methods. That the question as to which is the active principle of ergot is not yet fully settled is shown by the fact that the finding of the two highly active alkaloids ergotoxine and ergotamine seems to depend on the nature of the ergot rather than on a special method of extraction. The pharmacologic effects of these two are similar. Still, neither of these seems

to be capable of satisfactorily replacing the galenic preparation of ergot for clinical use, because with them the range between effective and harmful doses is too small. On the other hand, ergotamine promises to be clinically useful as a depressant of the sympathetic nervous system, in conditions such as hyperthyroidism. The book closes with a chapter on the galenic preparations of ergot, with their preservation, pharmaceutic assaying and forensic detection, and a bibliography of forty-three pages.

Le soufre en biologie et en thérapeutique. Par M. Loeper, professeur à la Faculté de médecine de Paris, et L. Bory. Paper. Price, 65 francs. Pp. 341, with 41 illustrations. Paris: G. Doin & Cie, 1932.

This is an admirable presentation of the rôle of sulphur in medicine, including veterinary practice and homeopathy. The subject matter is divided into four parts, with an appendix on technic. The first part, on the biology of sulphur, is subdivided into chapters on the elementary physicochemistry, the metabolism of sulphur, its rôle in the composition of the lipoids, albumins and pigments, and the excretion of sulphur through the biliary, urinary, pulmonary and other channels. Following these is an interesting chapter on the assimilation of the element, with especial reference to the principal organs acting as depots. The final chapter in the biologic section gives a short but clear outline of the rôle of sulphur in disease, discussing pneumonia, typhoid, tuberculosis, cancer and diabetes. The second part is concerned with therapy. Under various subdivisions, the forms of the drug, its toxicity, the pharmacology, both organic and inorganic, modes of application, methods of preparation, and diseases amenable to sulphur therapy are discussed in a conservative and practical way. A special section is devoted to the location of the most famous sulphur springs and the methods used at each of them. The importance of sulphur in vegetable biology, its occurrence in soil and water and its uses in fertilizing mixtures are also given consideration. The closing sections on therapy present the indications for the use of sulphur. Its application in articular and respiratory disease, dermatology and syphilis, general infections, nutritional disturbances, gynecology, urology, and homeopathic and veterinary medicine, are discussed in turn. The formulary includes most of the best known combinations, with specific directions for compounding. Under technic, the most recent and practical methods for the demonstration of sulphur in the urine and blood are described. The book presents a thorough and yet conservative evaluation of the place of sulphur in modern therapy. It may be recommended to the general practitioner, the research worker and particularly the dermatologist.

A Diabetic's Own Cook Book. By Stella H. Lyons. With a foreword by Logan Clendening. Cloth. Price, $2. Pp. 94. New York: Alfred A. Knopf, 1932.

As book after book is added to the already comprehensive library of literature on diabetes, the evaluation of additional volumes becomes steadily more difficult and necessitates discriminating criticism. Additional volumes should at least justify their publication either by a unique presentation of old material or by the introduction of new material of clinical or pathologic value. The author of the present volume has purposely limited her audience to fellow diabetics and has succeeded in producing a workable guide to assist them in cooking and planning balanced meals of limited carbohydrate content. She has increased the value of her cook book by the introduction of three autobiographic chapters written in semiserious, optimistic style, free from technical phrases. By this personal history she is able to warn against the inevitable consequences of "cheating" in the diet and to suggest some practical daily precautions that have benefited her. These confessions are apt to carry more weight than the warnings of physicians. The remaining chapters carry out the real mission of the book as stated by the author, "to remove that bugaboo, scales, for the layman who has not the time to study and transcribe measurements" and "to give a few rules and recipes," which are the product of years of experimentation in her own kitchen. Some of the most useful features of the book include directions for home canning of fruits and vegetables, transcription of gram and ounce measurements into the more familiar but equally accurate teaspoons, tablespoons and cups, and of course many appetizing recipes with food values computed. The general format of the book is inviting and avoids all semblance to a medical textbook. This volume will prove helpful to diabetic patients as a practical guide to daily dietary planning and as a supplement to any of the standard manuals of diabetes.

L'ostéose parathyroïdienne et les ostéopathies chroniques. Par J.-A. Lièvre, médecin assistant à l'Hôpital Trousseau. Paper. Price, 60 francs. Pp. 389, with 30 illustrations. Paris: Masson & Cie, 1932.

Lièvre summarize eighteen reported cases of parathyroid adenomectomy. Two of these were personal observations; in addition, a necropsy of one of his cases in which operation was refused is described in detail. These cases are used to describe definitively the syndrome due to parathyroid adenomas or overactivity. Necropsies of various bone diseases are reviewed with respect especially to the bones and parathyroids. From this critical review he brings out clearly what is the rôle of the parathyroid in bone diseases and what bone disorders are probably not related to parathyroid disease. Details of the pathologic anatomy and roentgenologic pictures of the bones are given. The chemical make-up of the blood is discussed as well as the balance studies on calcium metabolism. A valuable bibliography is appended. The book will prove especially useful to those interested in bone diseases, parathyroid diseases or disturbances in calcium metabolism.

Research Work on the Pneumococci and Their Enzymes and Its Significance in Lobar Pneumonia. By A. Cowan Guthrie, M.B. Cloth. Price, 7/6. Pp. 60, with 13 illustrations. London: Baillière, Tindall & Cox, 1932.

A careful reading of this volume indicates that it is hardly worthy of extended consideration in a scientific publication.

Medicolegal

Pedicle of Ovarian Tumor Twisted by Accident

(Winthrop v. State Industrial Commission (Calif.), 2 P. (2d) 142)

The claimant, an employee in a shoe store, stood on a stool to reach merchandise on a shelf. The stool tipped and she fell backward to the floor. The date of the accident she fixed as Jan. 13 or 14, 1930, although she was not certain. The date apparently made no clear impression on her mind because she did not at first attribute her disability to the accident and made no immediate demand on her employer for compensation or for medical treatment. Her employer claimed that the accident occurred between January 2 and 5, but the employee was certain that it could not have occurred as early as January 2. At the time of her fall she was dazed, but she continued to work until January 18. Then she had to stop. It was not until January 25, however, that she summoned her personal physician. On January 27 she was taken to a hospital, suffering from intense abdominal pain, fever and delirium. On January 31 she was operated on, and a large ovarian tumor and her left ovary were removed. The tumor was attached by a pedicle, which had become twisted in two places, cutting off the blood supply to the tumor and causing a gangrenous condition. The employee later claimed compensation under the workmen's compensation act, which the industrial accident commission refused to grant. The claimant thereupon took the case by certiorari to the Supreme Court of California.

The uncontradicted evidence, said the Supreme Court, shows that symptoms of which the claimant was free at the time of her accident began to develop almost immediately thereafter and became increasingly acute until an operation was performed. Those experts who observed the claimant's symptoms within a short time after the fall were of the opinion that the fall caused them. The experts who held to a contrary view did not see her until after the operation and they based their opinions largely on the premise that the preoperative symptoms did not appear sufficiently soon after the accident to indicate that they had any connection with it. The medical experts all recognized, expressly or impliedly, that a fall may cause the twisting of the pedicle of a tumor. While neither the cause of the twisting of the pedicle nor the time when it occurred was susceptible of exact demonstration, the physi-

cians who attended the claimant and personally observed the position and condition of the tumor and contiguous organs and tissues were in a better position to judge the length of time the condition had been in developing than were those whose calculations were based only on related facts. The claimant's failure to attribute her severe pain to the accident does not prevent her recovering compensation, if the accident was the origin or the accelerating cause of her disability. She had suffered previous attacks of abdominal pain, but she was unaware that she had a tumor. A recurrence of her abdominal pain may have indicated to her a return of her previous complaint rather than a changed pathologic condition resulting from her accident. An employee is not to be deprived of compensation because she fails to make a correct medical diagnosis.

The order of the industrial accident commission denying compensation to the claimant was reversed, four of the justices concurring. The chief justice and two associate justices dissented, holding that under the circumstances of the case the finding of the industrial accident commission was a finding of fact, supported by adequate evidence, which could not properly be disturbed by the court.

Liability for Not Completing Operation

(Britton v. Hartshorn (Conn.), 156 Atl. 48)

The plaintiff, on advice of her physician, entered a hospital at Derby, to be operated on by the defendant, for the removal of a uterine tumor. The tumor filled the entire abdomen. The preoperative examination indicated that it was probably cystic or fibrocystic. The defendant, according to his evidence in the suit that followed, told the plaintiff that if he found the growth too involved to permit its removal without danger to life, no extensive operation would be performed, to which the plaintiff assented. On making the preliminary incision, the defendant found an entirely fibrous tumor, fed by numerous large blood vessels, firmly adherent to various organs and to the body wall, and securely lodged in the pelvis. After conferring with his associates who were assisting him, he concluded that to undertake to remove the tumor with the resources then at hand would endanger the plaintiff's life; that it was better that it should be removed later at the New Haven General Hospital, where he usually operated, where he had trained assistants who were accustomed to his technic, where donors were immediately available if transfusion of blood became necessary, and where numerous surgeons were available as assistants in the operating room in case of an emergency. He therefore closed the incision, and the plaintiff, according to the evidence of the defendant, made a rapid and uneventful recovery. When she had recovered from the anesthetic she was advised by the defendant to enter the New Haven Hospital to have the operation performed. This, however, she did not do, but after eighteen months' medical treatment by other physicians she was successfully operated on elsewhere, by another physician.

The plaintiff was dissatisfied because of the failure of the defendant to remove the tumor at the operation in the hospital at Derby. She alleged that because of that operation she had suffered from phlebitis and shock and had incurred expense in obtaining a cure. She contended that at no time was anything said to her about the operation being an exploratory operation for the purpose of ascertaining the kind of tumor or its size or extent, or about any operation other than an operation to remove it, and that it was to an operation for the removal of the tumor that she consented. She therefore sued to recover damages. The case was tried by a jury. The defendant offered expert opinion evidence that he had used due care and skill in his operation and in his treatment and care of the plaintiff and had used excellent judgment in refusing to continue the operation under the circumstances under which it was being performed. Verdict and judgment were given for the defendant. The plaintiff thereupon appealed to the Supreme Court of Errors of Connecticut.

The trial court instructed the jury that:

> Negligence and unskilfulness are not presumed; they must be proved. In the absence of evidence to the contrary, the law will presume from the physician's right to exercise his profession that he has not violated his duty to exercise it with the requisite care and skill.

The court had previously told the jury that the plaintiff had to prove the essential controverted facts alleged in her complaint and later it charged the jury that she had to prove by the preponderance of evidence the occurrence of the acts or omissions necessary to show that ordinary skill had not in fact been exercised. To the instruction quoted, the plaintiff took exception. In an action by a physician for compensation for his service, said the Supreme Court, the burden of proof so far as relates to his carefulness and skilfulness is satisfied by the theory of law, which from evidence of the right of a physician to practice his profession presumes that he has not violated his duty to practice it with the requisite care and skill, and a defendant in such a case, who contends that his physician did not exercise such care and skill, must prove by a preponderance of evidence the acts or omissions constituting the alleged violation of the physician's duty. The same principle, in essence, is applicable in a malpractice case and requires the plaintiff to introduce evidence to support his allegations of want of care or skill, before the defendant is called on to produce evidence on that issue. The burden is on the plaintiff ultimately to establish want of care or skill, by a preponderance of evidence. The instruction given by the trial court could not well have been understood otherwise than as stating the rule, supported by overwhelming authority, that if the plaintiff introduces no evidence of lack of proper care and skill, the defendant is entitled to prevail on that issue without producing evidence to support it, because of the implications that arise from his right to practice his profession.

It was proper, said the Supreme Court, for the trial court to instruct the jury that the fact that the result of an operation was not as favorable as hoped for by the patient or by the physician raises no presumption of want of proper care and skill. Likewise was proper the supplementary comment by the court that medical and surgical science has not been so perfected "that a complete cure can be assured."

In undertaking to clarify to the jury the terms of the contract between the plaintiff and the defendant, the trial court stated what the defendant claimed: "that the contract was to treat the plaintiff's ailment with proper care and skill, and in no event would he endanger her life, and that when, during the course of the operation, it became apparent to him that to complete it under the then existing circumstances might endanger her life, he complied with his agreement by taking no further steps to remove the tumor." And the trial court then charged the jury:

> If you find this to have been the agreement of the parties, and that the defendant did not remove the tumor for the reason that to have done so would have endangered the plaintiff's life, and that his conduct was in accord with the standard of due care and skill previously given you, then the contract would not have been breached.

The plaintiff, however, took exception to this instruction, apparently because it did not take into account her claim that with proper care and skill the defendant could have determined before commencing the operation whether the tumor could safely be removed at that time and place, and her claim that, having undertaken the operation, it was his duty to proceed with it to completion, by removing the tumor. Here, said the Supreme Court, the trial court was considering the defendant's claim as to the terms of his agreement with the plaintiff. The plaintiff's claims as to those terms were adequately covered in other parts of the court's charge.

To a hypothetical question propounded to an expert witness, to obtain his opinion as to whether there was lack of skill or care on the part of the defendant, the plaintiff objected that the hypothetical question related to the ultimate issue of negligence or unskilfulness, which was a matter to be determined by the jury. This objection, however, said the Supreme Court, was invalid as applied to a case of this kind. In such a case, opinion evidence on the main issue of professional care and skill, "being a topic requiring special experience of an expert," is not only permitted, but required, to be produced by the plaintiff. To controvert such opinion evidence, the defendant may introduce similar evidence. It remains the province of the jury to consider and weigh conflicting opinions and to determine from them whether proper professional skill and care were exercised.

The Supreme Court of Errors found no error in the case and the verdict and judgment in favor of the defendant therefore stood.

Society Proceedings

COMING MEETINGS

American Ophthalmological Society, New London, Conn., June 27-29. Dr. Emory Hill, 501 East Franklin Street, Richmond, Va., Secretary.
Medical Library Association, San Francisco, June 20-22. Miss Marjorie J. Darrach, 645 Mullett Street, Detroit, Secretary.
Montana, Medical Association of, Miles City, July 13-14. Dr. E. G. Balsam, 208 North Broadway, Billings, Secretary.
Pacific Northwest Medical Association, Spokane, Wash., June 27-29. Dr. Frederick Epplen, 1215 Fourth Avenue, Seattle, Secretary.
South Dakota State Medical Association, Watertown, June 20-22. Dr. John F. D. Cook, Langford, Secretary.
Western Branch of the American Urological Association, Portland, Ore., July 1-2. Dr. F. S. Dillingham, 548 S. Spring Street, Los Angeles, Secretary.
West Virginia State Medical Association, Parkersburg, June 21-23. Mr. J. W. Savage, Professional Building, Charleston, Executive Secretary.
Wyoming State Medical Society, Rock Springs, July 18-19. Dr. Earl Whedon, 50 N. Main Street, Sheridan, Secretary.

MEDICAL ASSOCIATION OF GEORGIA

Eighty-Third Annual Session, held at Savannah, Ga., May 17-20, 1932

The President, DR. ARTHUR G. FORT, Atlanta, Ga., in the Chair

Tuberculosis of the Kidney

DR. WALLACE L. BAZEMORE, Macon, Ga.: Eleven urologists in Georgia report to me that they have made a definite diagnosis in sixty-eight cases of renal tuberculosis in the past five to ten years. The diagnosis of urinary tuberculosis depends on finding the organism in the urine. When better laboratory facilities become available, more cases will be diagnosed. With the continued efforts of the profession to eradicate pulmonary tuberculosis, fewer and fewer renal infections will be seen. The removal of a tuberculous kidney or a tuberculous epididymis, with neglect of a distant focus, only invites further urinary involvement.

Biopsy

DR. EVERETT L. BISHOP, Atlanta, Ga.: No hard and fast rule can be made to apply to biopsy in general, for in certain cases it does no apparent harm, and frequently it is necessary for diagnosis. It must be admitted that in some cases the procedure is fraught with considerable danger to the patient and in these cases other means at hand will give almost or just as much information as will the microscopic examination of an extremely small piece of tissue. There are a few general rules that should be considered when performing biopsy for diagnosis. In certain conditions it is always advisable to remove the entire tumor rather than to excise only a small piece. The removal of the entire tumor is more desirable in tumors of the skin if they are small, or single lymph nodes or indefinite tumors of the breast. No encapsulated tumor should be incised; rather, the entire tumor should be removed intact. It should always be remembered that the biopsy gives a picture of one portion of the tumor only, which may be entirely misleading and for this reason it is an extremely dangerous method of diagnosis in bone tumors. In tumors of bone so situated that amputation cannot be done or in multiple tumors of bone, it is doubtful whether biopsy is ever justified. Biopsy is of great value in establishing a diagnosis in suspected tumors of the larynx, when early diagnosis is essential for any hope of cure. Suggestive lesions of the lip are probably best treated with radiation without biopsy on account of the liability of early metastases. Rectal tumors usually are so situated that biopsy can be easily done, but one should be careful to obtain a piece of the tumor and not simple hyperplastic mucosa. Methods of biopsy are varied. The cautery coagulates the tissue and, unless a relatively large piece is removed by this method, the entire specimen will be coagulated and useless for diagnostic examination. Biopsy by needle puncture, with an 18 gage needle and ordinary syringe, has lately been employed, its advantage being that there is almost no appreciable trauma and it can be used for deep tumors when one would hesitate to cut down on them. Recently I have used the Hoffman punch, a trocar instrument with a larger bore than the ordinary needle used in the foregoing method. With this instrument it is frequently possible to remove a fragment of the tumor large enough for embedding and sectioning. In using this instrument, it is necessary to incise the skin under procaine before introduction. The advantage of this instrument lies in the fact that a small but frequently diagnostic biopsy can be done on deep seated tumors with little trauma and little discomfort to the patient.

Cosmetic Dermatology

DRS. JACK W. JONES and HERBERT S. ALDEN, Atlanta, Ga.: Deviations from the normal skin which do not seriously injure the health of the individual but are disagreeable to the patient may be spoken of as "cosmetic skin complaints." Such skin lesions as benign nevi (moles and angiomas), superfluous hair, pigmentations, scars, freckles, tattoo marks, acne, warts, leukoderma and telangiectases all come under this heading. More and more people are seeking relief of their real or supposed cosmetic defects, and the medical profession should lead in the dissemination of correct knowledge and application of the valuable aids at hand for the removal of these defects. Let us have a more careful consideration of the patient seeking cosmetic advice. Many of these individuals may cause themselves much damage by turning to the unintelligent beauty operator for advice.

Treatment of Sinusitis

DR. CALHOUN MCDOUGALL, Atlanta, Ga.: The wave of radicalism in sinus surgery is on the wane. It is being realized that more conservative treatment, such as immunization with vaccines or nonspecific therapy, climate and diet, are more efficacious than surgery in many cases. Conservative surgical procedures in sinus disease, in cooperation with natural defense and healing processes, frequently prove of tremendous value. In critical conditions they may turn the tide, averting a fatal outcome, by timely drainage of pus. The objectives are to establish aeration and drainage.

Vitamin Therapy

DR. D. H. GARRISON, Tate, Ga.: Study of vitamins from a physiologic and therapeutic standpoint has led to the conclusion that the human system cannot survive without the proper intake of vitamins and that it is as important to have a balanced intake of vitamins as it is to have a balanced intake of food supply. No one vitamin, prescribed alone, can give the proper results, but vitamins must be prescribed in a group, or at least the mater vitamin A should be prescribed with any other vitamin in order to obtain the proper results.

Observations of Some Common Breast Lesions

DR. WILLIAM PERRIN NICOLSON, JR., Atlanta, Ga.: Let me urge a careful examination and consideration for every patient with a breast lesion. One should determine first of all whether it is inflammatory or a new growth and, if the latter, whether benign or malignant and, if malignant, the degree of malignancy. Such conditions as benign hypertrophy should be recognized early when the breast can be saved, and Brodie's disease when an apparently hopeless condition can be cured with simple amputation. Irradiation with x-rays or radium or both should be given in hopeless cases, and in suitable cases a palliative operation performed. Lastly, the doctrine of periodic health examinations should be spread, and one should remember that every solitary lump in a breast should be removed and examined by a competent pathologist. If a pathologist is not available it is safer to remove the breast instead of the lump, and then a delay of a week or ten days before the radical operation can be performed is not so hazardous.

The Relation of Diseases of the Nasal Accessory Sinuses to Systemic Derangements

DR. WILLIAM MITHOEFER, Cincinnati: The nasal accessory sinuses play an important rôle in the causation of systemic derangements. The infection in the nasal sinuses is often of a latent type, with frequent acute exacerbations, and consequently is often overlooked by the practitioner who does not use the instruments of precision necessary for the detection of disease within the cavities. It is a sad commentary to see

patients who have had a bronchitis treated for several months without consideration of the nasal accessory sinuses as a cause of the infection of the lower respiratory tract. It is a great sin of omission on the part of the rhinologist to look on disease of the nose and its ramifying cavities as a local disturbance only, and to ignore entirely the fact that many times there is present a constitutional derangement. They term us specialists of the ear, nose and throat; it would be more to the point if we were just plain doctors who are making a special study of the ear, nose and throat.

Effect of Previous Ligation of the Common Duct on Restoration of the Liver Following Partial Hepatectomy

DR. J. GASTON GAY, Atlanta, Ga.: Experiments were performed on dogs to determine whether the liver would be restored after partial removal, if jaundice was produced by previous obstruction to the outflow of bile. The routine procedures were as follows: The common bile duct was ligated and the gallbladder removed. At various intervals after the production of biliary obstruction, two or more lobes of the liver were removed. It was found that partial removal of the liver was not followed by the remarkable restoration that occurs in the normal liver.

Origin and Development of the Psychoneuroses

DR. LEWIS M. GAINES, Atlanta, Ga.: The psychoneuroses for their development require a favorable soil. This is furnished in a large percentage of cases by unfavorable heredity; in a smaller percentage, by various types of physiologic deficiencies, such as dietary or endocrine, or by preexisting disease, infectious or noninfectious. Reynolds found impairment of normal physiologic function of the body an etiologic factor in 42.5 per cent of 200 cases. Physical injuries leading to traumatic neuroses should be considered in this category and are of particular interest to railroad and industrial surgeons. In individuals thus conditioned, emotion, particularly fear, in some guise, or interference with the fundamental instincts of self-preservation and sex life, are the important effective causes. These causes extend back almost invariably to an early period of life—to infancy or early childhood. Symptoms develop gradually, reaching their zenith as a rule during puberty or early maturity. A case of pure psychoneuroses appearing for the first time after the age of 25 is rare and suggestive of other disease. The feeling of inferiority as described by Adler in response to unfavorable environment is doubtless responsible for the development of many cases. The mechanism so elaborately worked out by Freud may be operative in a certain number but certainly not in the majority. Because of the frequency of psychoneuroses, the degree of misery they bring and the all too common mistakes in diagnosis, it is of the greatest importance for all physicians to obtain as clear an insight as possible into the mechanisms responsible.

Gastro-Intestinal Manifestations of the Psychoneurotic State

DR. RUSSELL H. OPPENHEIMER, Atlanta, Ga.: As practitioners of medicine grow away from the type of the old time family doctor, they lose their position as confidant and counselor. This changed position tends to make them unaware of the experiences and thoughts of the patient. They know little of his joys and sorrows, his apprehensions and fears, his anxieties. Lacking this information and the inclination or time to acquire it, they have but one course left: to ascribe the patient's complaint to some organic (structural) disturbance, which they treat sometimes symptomatically, sometimes specifically (they think) and sometimes surgically. Often the benefit, if any, derived under these circumstances is due largely to chance or to the hopes of the patient and is generally but transient in character. The interrelation of the autonomic and the central nervous system permits psychic influences to alter the functional activity of the gastro-intestinal tract. Because of the wide variation of demands made on it, the gastro-intestinal tract is especially suscepticle to such psychic influences. The functional difficulties thereby established give rise to symptoms similar to the symptoms induced by organic diseases, as these symptoms also arise largely from functional disturbance. The symptoms of this psychic alteration of gastro-intestinal function are the gastro-intestinal manifestations of the psychoneurotic state.

Cardiac Manifestations of the Psychoneurotic State

DR. ERNEST F. WAHL, Thomasville, Ga.: Functional disorders of the heart may result from a number of direct causes. A casual remark by an insurance examiner that a murmur is present, that the heart skips a beat, or advice given by the family physician that the heart should be watched may initiate a life of chronic invalidism. On the other hand, the patient may assume the presence of a serious lesion because he is examined by more than one physician. A thorough diagnostic study, including all indicated laboratory procedures, must be made before treatment is to be considered. Special attention should be given to the patient's environment as possible causes of psychic stimuli. Drugs should play an insignificant rôle in the treatment of functional disorders of the heart. Cardiac stimulants should be avoided. Some simple sedative is sometimes necessary at the beginning but should be discontinued as soon as possible. A few cases of premature contraction will respond only to quinidine.

The Treatment of the Psychoneurotic State

DR. W. R. HOUSTON, Augusta, Ga.: My advice to those undertaking psychotherapeutic treatment for the cure of functional disorders is not to be diverted into the bypaths of surgery or pharmacology. The solution will ultimately be found by one who is determined to do so. One should go at the problem, not bound by any system or by any set of rules; but all the skill, all the knowledge of man that one has been able to accumulate will be called into play.

Effects of Injections of Ovarian Follicular and Anterior Pituitary Hormones on Conception and Pregnancy in Laboratory Animals

DR. G. LOMBARD KELLY, Augusta, Ga.: Small doses of female sex hormone (as low as 10 rat units), given in broken doses, will prevent conception in the guinea-pig. When the dosage is increased to 75 units and more, abortions and miscarriages result, though in the later stages of pregnancy the young perish in utero and the mothers often die also. Injections of freshly expressed juice of anterior pituitary or of the extract of pituitary-like hormone from the urine of pregnant women into sexually mature female guinea-pigs just after copulation does not prevent conception. Injections of the same two products into pregnant animals almost invariably cause abortion or miscarriage. Whether the results obtained in this investigation are due to the hormones or to other substances contained in the injected material remains to be determined.

A Method of Traction for Fractures of the Femur

DR. CHARLES H. WATT, Thomasville, Ga.: In the method herein described, counteraction is obtained by the use of a "running trunk" plaster-of-paris spica cast fastened to the head of the bed by means of ropes attached to metal strips incorporated in the cast. During the past six months I have used this procedure in ten cases. One of the patients suffered fractures of both femurs, making a total of eleven fractures. The youngest patient was a boy of 14, and the oldest was a man aged 72. Eight were males and two females. The longest stay in the hospital was fourteen days and the shortest five days, with an average of nine and one-half days. The feeling is that better anatomic and functional results are being obtained than formerly.

The Physician's Part in the Public Health Program

DR. J. A. REDFEARN, Albany, Ga.: It is the duty of physicians to urge employment of county or district health officers and to support the several departments of public health. Private practitioners are backward in developing preventive medicine. Correcting physical defects that one may find or have pointed out by health officers is not enough. Mental hygiene should be stressed by physicians. Public health will be greatly benefited through advice by physicians on dietetics. Physicians are prone to fail to explain the importance of a balanced diet. Mothers will permit their children to eat unbalanced diets in the midst of plenty until malnutrition, pellagra, tuberculosis or

rickets develops, while physicians retain unspoken messages, fearful that motives might be misconstrued.

How Much Curative Medicine Should a Health Department Do?

DR. C. L. RIDLEY, Macon, Ga.: Had the medical profession done the things advocated by health departments and accepted by the profession as worthy and worth-while measures in the prevention of disease there could never have been any excuse for the existence of health departments as now operated. When the medical profession assumes its place in preventive medicine with every man, everywhere, doing the things he should to prevent avoidable disease and premature death, the activities of health departments can be restricted to a more limited field. It is imperative at present that health departments go into the field of preventive medicine absolutely unhampered and with the hearty support of the medical profession till such a time as the medical profession is ready to assume the responsibility of disease prevention as well as the care of those who are ill.

Rickets

DR. MERCER BLANCHARD, Columbus, Ga.: Rickets often begins to develop in the first few weeks of life; treatment must be begun early. Three important agents are available: cod liver oil, viosterol (irradiated ergosterol) and sunlight (natural or artificial). It is my custom to start cod liver oil at about a week or 10 days of age in a dosage of 15 minims (1 cc.). In about ten days, this is given twice a day. The dosage is gradually increased until three teaspoonfuls a day is given at 3 months of age. I frequently add a drop or two of viosterol to each dose of cod liver oil. When the weather permits, sun baths are started, beginning with a few minutes a day and gradually increasing to half an hour. There is so much opposition on the part of the mothers to undressing the babies in cool weather, for fear of cold, that I begin just exposing the legs and face to the sun rays. I have about twenty babies that were handled along this line, this winter and spring, at the same time getting cod liver oil or viosterol. The results have been fine. The curative treatment of rickets is the same as the prophylactic, only more active. Larger doses of cod liver oil or viosterol are given, and this is combined with treatment with the mercury vapor lamp. The various foods that have been activated act as adjuncts in the treatment.

The Common Cold

DR. A. J. WARING, Savannah, Ga.: I venture to make the following suggestions for the prevention of colds in childhood: One should see that the child's nose, throat and accessory cavities are not pathologic, diagnosing early and remedying allergic manifestations if possible. Exposure to infections of the mucous membranes should always be avoided; if exposure has occurred, silver salts should be used intranasally for three days. One should see that his food, clothing and rest are suitable, that he has abundant fresh air, that he is never anemic, and that his skin reacts quickly to heat and cold. Let him avoid marked chilling and fatigue. In other words, if he is not a normal child physically and psychically, he should be worked over sympathetically until he becomes one. It seems to me that the best a pediatrician can strive for is to see that at the age of puberty the boy or girl leaving his office for the last time leaves it with a courageous mind and a vigorous body. Toward the attainment of that object, the avoidance or the prompt cure of the common cold is a strategic move of inestimable value.

Intracranial Birth Hemorrhages

DR. C. M. BURPEE, Augusta, Ga.: Intracranial hemorrhages are responsible for many of the deaths that occur during the first few days of life and most of the paralyses seen in childhood. They are frequently not recognized at birth. They occur most frequently in the premature infant or the infant subjected to a long, difficult labor, particularly when instrumentation, podalic version with breach extraction or solution of pituitary is used to terminate this type of labor. They are always due to intracranial trauma. The hemorrhage may occur anywhere inside the skull, but subdural hemorrhages are the most important. The symptoms depend on the size and location of the hemorrhage. The prognosis depends not only on the size and location of the hemorrhage but on the type of treatment instituted. The treatment consists in prevention as far as possible by appropriate prenatal care. All prolonged or difficult labors should be considered as potential cases of intracranial hemorrhage and treated as such. Respiration should be stimulated by a mixture of carbon dioxide and oxygen rather than by violent resuscitative measures. All infants with intracranial hemorrhage or suspected intracranial hemorrhage should be put at absolute rest and external heat applied when necessary. The increased intracranial pressure should be relieved and the respiration maintained. The body fluid should be maintained and, above all, the infant should be watched closely. In large supratentorial hemorrhages the blood clot may be removed if adequate surgical facilities are available.

Carcinoma of the Colon

DR. M. J. EGAN, Savannah, Ga.: As much progress has been made in the past ten years in surgery of the carcinoma of the colon, as regards both operative mortality and end-results, as in any other field of surgery. The greatest aid to early diagnosis of growths in the colon proper is the x-rays, with which diagnosis and localization can be made with fair accuracy in more than 95 per cent of the cases. I cannot emphasize too strongly in this regard that the barium should be used as an enema after cleaning out the colon and not as a meal which completely closes a small opening through the growth, causing an acute obstruction to be superimposed on an already chronic obstruction. Carcinoma of the colon calls for surgical treatment, with resection of the growths if recognized at a favorable time before extension by metastasis and adhesion to surrounding viscera takes place; otherwise by colostomy proximal to the growth. The large majority are best treated by graded operations and only in early carcinoma of the right half of the colon is primary resection and ileocolostomy justifiable, and even then an ileostomy should be done proximal to the site of the anastomosis or the closed end of the colon brought up against the wound with long sutures, which come out through the upper end of the wound, so that if gas does accumulate and cannot be expelled this end of the colon can be opened to prevent breaking down of the suture line. When normal function of the bowel becomes established, this opening closes spontaneously. In practically all other cases a colostomy well proximal to the growth or an ileostomy, if the growth is in the cecum, should be done as a preliminary procedure, with a wait of from ten days to two weeks or longer if necessary to build up the patient's resistance and get the growth and bowel in favorable condition for resection. In carcinoma of the colon without metastasis and under local conditions in which removal is possible, the prognosis is as satisfactory as for carcinoma in other parts of the body and better than for carcinoma in any other part of the gastrointestinal tract.

Amebiasis: Prevalence and Protean Manifestations

DRS. S. F. ROSEN and DAVID R. THOMAS, JR., Augusta, Ga.: The treatment of our patients consisted of 1 grain (0.065 Gm.) of emetine hydrochloride intravenously for ten days. Most writers recommend subcutaneous and intramuscular injection, but these are quite painful and we have never had any untoward reaction from its intravenous use. We give 1 grain diluted to 10 cc. with physiologic solution of sodium chloride. This is followed by a course of chiniofon. The usual treatment consists of 16 grains (1 Gm.) three times a day by mouth over a period of ten days and in refractory cases a 250 cc. enema of 2 per cent chiniofon, especially when the ulcers are in the lower portion of the colon, since the drug is supposed to act by direct contact with the amebas. Emetine is not without danger, but when cautiously administered is quite useful. Cases of peripheral neuritis have been reported and it too may set up a diarrhea. Emetine is a depressant to the heart, and sudden death has been reported following its use; but if one gives only 1 grain daily in well diluted solutions, gives it slowly and does not exceed 10 grains in as many days, there will be no untoward results. Treatment, however, should not be repeated within six to eight weeks because emetine is eliminated very slowly.

Current Medical Literature

AMERICAN

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Titles marked with an asterisk (*) are abstracted below.

American Journal of Medical Sciences, Philadelphia

183: 445-592 (April) 1932

*Nature of Physical Signs of Bundle-Branch Block. J. T. King and D. McEachern, Baltimore.—p. 445.
Unusual Atropine Effect on Ventricular Tachycardia. S. M. Salley, Boston.—p. 456.
Congenital Heart Disease with Multiple Cardiac Anomalies: Report of Case Showing Aortic Atresia, Fibrous Scar in Myocardium and Embryonal Sinusoidal Remains. S. Bellet and B. A. Gouley, Philadelphia.—p. 458.
Incidence of Thrombo-Angiitis Obliterans in Brothers. S. S. Samuels, New York.—p. 465.
*Erythromelalgia and Other Disturbances of Extremities Accompanied by Vasodilatation and Burning. G. E. Brown, Rochester, Minn.—p. 468.
Blood Pressure in Arteries of Extremities in Normal Subjects and in Patients with Peripheral Vascular Disease. H. E. Pearse, Jr., and J. J. Morton, Rochester, N. Y.—p. 485.
*Coronary Disease in One Hundred Diabetics. M. H. Nathanson, Minneapolis.—p. 495.
Diabetic Gangrene: Incidence and Pathogenesis: Analysis of Fifty-Eight Cases Among One Thousand and Eight Diabetics. D. W. Kramer, Philadelphia.—p. 503.
Effect of Lugol's Solution on Chronic Lymphatic Leukemia and Its Bearing on Pathogenesis of Exophthalmic Goiter. H. B. Friedgood, Ann Arbor, Mich.—p. 515.
Food Allergy in Differential Diagnosis of Abdominal Symptoms. A. H. Rowe, Oakland, Calif.—p. 529.
Syphilitic Arthritis with Effusion. D. H. Kling, New York.—p. 538.
Aseptic Purulent Meningitis: Report of Six Benign Cases. G. A. Young and A. E. Bennett, Omaha.—p. 550.
Spasmodic Torticollis: Results of Removal of Foci of Infection and Treatment with Specific Vaccine. E. H. Rynearson and H. W. Woltman, Rochester, Minn.—p. 559.
Clinical Cycle of Goiters. J. W. Hinton, New York.—p. 563.

Physical Signs of Bundle-Branch Block.—In an analysis of fifty consecutive cases of bundle-branch block, King and McEachern noted the following physical signs: visible reduplication of the apex thrust in forty-two (84 per cent), palpable reduplication in forty (80 per cent), first heart sound split into two elements in twenty-eight (56 per cent), two separate systolic murmurs in six (12 per cent), and a single first sound with a separate murmur in eight (16 per cent). On the basis of these signs a correct diagnosis was made prior to knowledge of the electrocardiogram in thirty-four of forty attempts (85 per cent); the presence of bundle-branch block was suspected in two (5 per cent) but was not definitely diagnosed; the diagnosis was not made in 4 (10 per cent). There was a difference of opinion in four other cases. In the remaining six cases, the presence of bundle-branch block was recognized only by electrocardiogram. In three patients showing complete auriculoventricular block as well as intraventricular block, the diagnosis of both conditions was made in two cases from clinical signs and the signs were equally clear in the third case; signs of bundle block were found and this condition recognized clinically in five of seven patients showing both fibrillation and bundle block. The latter two groups of cases show that the auricles are not concerned with the physical signs of bundle block. Presystolic gallop bears a superficial resemblance to the signs of bundle block: however, clinical evidence and apex cardiograms show the two conditions to be different, presystolic gallop being truly presystolic, and the signs of bundle block being limited to systole and causing a division of the apex systolic plateau. Normal controls failed to show systolic reduplication. A cinematographic film of the movement of a straw attached to the cardiac apex showed a double systolic thrust in each of five consecutive cases of bundle-branch block. On the basis of their observations, the authors draw the following conclusions: 1. Intraventricular block may be recognized in a majority of cases from physical signs. 2. The most constant signs consist of visible and palpable reduplication of the apex thrust. 3. The reduplication is within systole. The auricles do not play a part in the production of the physical signs.

Erythromelalgia and Other Disturbances of Extremities.—Brown calls attention to the fact that the term erythromelalgia is not entirely accurate, since redness and pain in the extremities are common to several vascular diseases of diverse types. In erythromelalgia attacks of local vasodilatation with increased local heat and pain constitute the basic disturbance. Four fundamental criteria are essential to diagnosis of the disease: (1) bilateral burning pain in the extremities; (2) sharp increase of local heat in the affected parts, though redness, flushing or congestion may vary in degree; (3) production and aggravation of the distress by heat and exercise, and (4) relief by rest, cold and elevation. During the attacks the temperature of the affected parts should be found to reach or exceed 33 or 34 C. (91.4 or 93.2 F.) and pain usually becomes evident when this temperature is reached or exceeded. Augmentation in arterial pulsation and the rate of loss of heat give further evidence of the high degree of dilatation of the arteries. The author outlines certain methods of study to distinguish between the different conditions in which burning extremities occur.

Coronary Disease in Diabetic Persons.—Nathanson reports that an analysis of 100 necropsies on diabetic persons showed an incidence of 41 per cent of severe coronary disease. Above the age of 50 years the incidence was 52.7 per cent, as compared with 9 per cent in an even larger series of nondiabetic persons of the same age. The frequency of coronary disease is almost as high in the female as in the male. The incidence of hypertensive hypertrophy of the heart indicates that hypertension is only slightly more frequent in the diabetic than in the nondiabetic person. In diabetic persons with gangrene, the incidence of coronary disease is higher than in the uncomplicated cases. The essential cardiac lesion of diabetes is coronary sclerosis. Other types of cardiac disease are of relatively rare occurrence.

American Journal of Tropical Medicine, Baltimore

12: 101-197 (March) 1932

*Quinine Analysis of Blood, with Reference to Treatment of Malaria. J. H. St. John, Washington, D. C.—p. 101.
*Studies in Blackwater Fever: Part I. Variation in Intensity of Hemoglobinuria Following Administration of Quinine by Regulation of Dosage of Quinine in Susceptible Individual. U. Brahmachari, P. Brahmachari and R. Banerjea, Calcutta, India.—p. 117.
Quinine and Plasmochin Therapy in Plasmodium Rouxi Infections, with Further Notes on Effects of These Drugs on Other Avian Malarias. R. D. Manwell, Syracuse, N. Y.—p. 123.
Effect of Four Amebicidal Drugs on Tissues of Digestive Tract Grown in Vitro. M. J. Hogue, Philadelphia.—p. 149.
Simple Method of Immobilizing Animals for Laboratory Purposes. L. H. Dunn, Panama, R. de P.—p. 173.

Quinine Analysis of Blood.—On the basis of analyses of quinine in the blood by the technic of Vedder and Masen, St. John draws the following conclusions: 1. The administration of a single dose of 1.95 Gm. of quinine sulphate in capsules to four individuals resulted in the development of a concentration of quinine in the blood of three to more than 6 mg. per liter. Analyses in two of the four showed that the concentration decreased after the first eight hours and in one it had decreased to less than one half of the maximum noted at the end of twenty-four hours. 2. The administration of 650 mg. of quinine sulphate in capsules every eight hours to two individuals resulted in the development in both, and maintenance in one, of a concentration of quinine in the blood in excess of 6 mg. per liter. 3. The administration of 325 mg. of quinine sulphate in capsules every four hours to five individuals resulted in the development of a concentration of quinine in the blood, in three, in excess of 6 mg. per liter, while the remaining two failed to develop this concentration. 4. The administration of 650 mg. of quinine sulphate in capsules every four hours to ten individuals resulted in the development and maintenance of concentrations of quinine in the blood in excess of 10 mg. per liter in eight, while the remaining two failed to maintain this concentration. 5. The analyses made within two hours after the administration of quinine sulphate in capsules shows that the time of the development of the highest concentration of quinine in the blood is variable. 6. It was shown that the height of the concentration of quinine in the blood, following the administration of divided doses of 1.95 Gm. of quinine

sulphate, depends on the proportion of this amount of quinine received prior to the analysis. If given at one dose a high concentration results within a few hours to decline gradually, while small divided amounts result in low initial concentrations to reach a maximum only after the entire 1.95 Gm. of quinine has been given. 7. Continued administration of quinine in the same doses used during the first twenty-four hours does not necessarily result in increased concentrations of quinine in the blood over the maximum observed during the first twenty-four hours. In fact, after several days of the administration a slight decrease may occur. Apparently the cumulative action of the drug is countered by an increased rate of disposal. 8. A comparison of concentrations of quinine in the blood following the administration of quinine sulphate in capsules discloses that a few individuals do not develop and maintain blood concentrations as readily as others, while some develop and maintain concentrations in excess of the average. This fact may partially explain why in some of the standard quinine treated cases of malaria the patients have a relapse while others respond so readily and are cured.

Studies in Blackwater Fever.—The Brahmacharis and Banerjea describe experiments from which they conclude that the erythrocytes in cases of blackwater fever following administration of quinine are slightly more vulnerable to quinine than those of normal individuals. There is no difference in the vulnerability of erythrocytes in cases of blackwater fever to quinine: (1) before hemoglobinuria; (2) during active hemolysis after administration of quinine, and (3) after the disappearance of the hemoglobinuria. The increased vulnerability of erythrocytes in cases of blackwater fever to the action of quinine is so slight that it cannot account for blackwater fever that may follow quinine administration, and, therefore, whatever may be the mechanism of hemoglobinuria following administration of quinine, there is no evidence to show, so far as experiments in vitro are concerned, that it is due to any direct action of quinine on the erythrocytes of susceptible individuals.

Annals of Internal Medicine, Ann Arbor, Mich.

5: 1103-1220 (March) 1932

Cutaneous Manifestations of Systemic Disease. U. J. Wile, Ann Arbor, Mich.—p. 1103.
*Malignant Thymoma of Reticulum-Cell Type with Pressure on Left Lung, Trachea, Esophagus, Left Phrenic and Left Recurrent Laryngeal Nerves, and with Metastases to Glands of Left Side of Neck; Importance of Biopsy for Differential Diagnosis of Cervical Lymphadenopathies. L. F. Barker, Baltimore.—p. 1113.
*Management of Severe and Atypical Hyperthyroidism. F. H. Lahey, Boston.—p. 1123.
*Fallacies and Dangers in Treatment of Exophthalmic Goiter by Iodine. W. O. Thompson and Phebe K. Thompson, Chicago.—p. 1129.
Subacute Bacterial Endocarditis Following Extraction of Teeth: Report of Case. M. Bernstein, Philadelphia.—p. 1138.
*Management of Coronary Thrombosis and Its Complications. B. P. Seward, Roanoke, Va.—p. 1145.
*Paroxysmal Tachycardia Related to Menstrual Period. J. H. Crawford, L. H. Sigler and H. Fruchter, Brooklyn.—p. 1155.
Coincidental Occurrence of Diabetes Mellitus and Pernicious Anemia: Report of Two Cases. C. Shookhoff, Brooklyn.—p. 1161.
Significance of Meningeal Permeability. S. Katzenelbogen, Baltimore.—p. 1168.
Use of Histamine Hydrochloric Acid as Test Meal. H. H. Haft, Syracuse, N. Y.—p. 1175.
San Francisco as Medical Center. W. J. Kerr, San Francisco.—p. 1178.

Malignant Thymoma.—Barker considers that in the case reported by him there is no indication for surgical intervention. Attempts to remove the intrathoracic tumor are unjustifiable. The risk from the operation itself would be very great, in the first place, and, in the second place, there is no probability that such surgical intervention would prolong life. Nor is there any advantage to be derived from removal of the lymph nodes of the neck, except for diagnostic purposes. The best therapeutic methods of intervention available are high voltage roentgen therapy and radium therapy. It is possible that one may be able to reduce the size of the mass within the thorax and also the size of the enlarged lymph nodes of the neck by such treatment. Of course, everything should be done, in addition, to build up the general health and strength of the patient by diet and by suitable hygiene. One must recognize, however, that any favorable results of therapy will be of but temporary duration.

Management of Severe and Atypical Hyperthyroidism.—Lahey believes that a large percentage of patients who are permitted to get into the advanced state of thyroid crisis will die. Their salvation is the early detection of an impending thyroid crisis or undue intensification of their hyperthyroidism and its emergency treatment with iodine, morphine, amytal, "avertin," salt solution and dextrose. By the early application of these measures, patients may be kept out of thyroid crises, prepared and operated on by subtotal thyroidectomy within three weeks, and definitely relieved of their thyroidism. Apathetic hyperthyroidism is a state characterized by signs and symptoms quite contrary to those of typical activated hyperthyroidism. It is misleading not only as to its existence but also as to its seriousness, and it possesses graver dangers of a fatality under stress or operative procedure than does the typical activated hyperthyroidism. An appreciation of its atypical signs and symptoms will result in its early diagnosis, and an appreciation of its certain unobtrusive seriousness should make one realize the possibilities of a fatality when the patient is submitted to any considerable extra burden, particularly such as subtotal thyroidectomy in one stage. It should make one undertake surgical procedures in all patients of this type, no matter how good they appear as risks, in two stages. Its earlier recognition and submission to surgery will result in a considerable lowering of its operative and nonoperative mortality rate.

Dangers in Treatment of Exophthalmic Goiter by Iodine.—The Thompsons call attention to the fact that since the introduction of iodine the mortality from thyroidectomy for exophthalmic goiter in the leading clinics has been lowered from about 1 to 4 per cent to about 0.25 to 0.7 per cent. This reduction is, they believe, less than is generally appreciated. The actual clinical improvement and reduction in basal metabolism caused by iodine is also somewhat less than is generally appreciated, owing to the fact that the influence of rest is usually not controlled. In very severe cases of the disease, operation should be performed as soon as the metabolism reaches a level during the administration of iodine, because the beneficial effects in such cases may be of short duration. In cases in which the basal metabolism is high after the prolonged administration of iodine and those in which the basal metabolism is rising rapidly during the administration of iodine, no operative procedures should be undertaken until iodine has been omitted long enough for the refractoriness to it to disappear (usually about four weeks) and then readministered. In the routine preoperative treatment of exophthalmic goiter it is desirable to give suddenly an adequate excess of iodine and not to precede this with small doses. A few patients still die from typical postoperative thyroid crises in spite of the administration of large doses of iodine. These reactions sometimes occur in patients who have shown satisfactory responses to iodine before operation. There is more to the treatment of exophthalmic goiter than the administration of iodine and the performance of a subtotal thyroidectomy. The skill of the surgeon, selection of the time and type of operation, proper attention to calories, protein and fluid in the preoperative and postoperative periods, abolition of fear and worry, and the type of anesthesia all seem to be factors of importance in keeping the mortality low.

Management of Coronary Thrombosis and Its Complications.—According to Seward, the rational treatment of coronary thrombosis depends on a knowledge of the anatomic changes that occur in the heart following thrombosis, and of the functional changes accompanying these. Morphine should be given in doses large enough and often enough to control the pain. Heat should be applied to the body of the patient. Stimulation with drugs should be avoided unless the heart sounds are very feeble and arrhythmic; the pulse is small in volume or imperceptible; the respirations are irregular and cyanosis is prominent. Caffeine sodiobenzoate should then be given in small rather than large doses, and it should be continued as long as the condition of the patient requires it. When nausea prevents the patient from taking an adequate amount of fluid and food, a small quantity of a concentrated solution of dextrose should be given intravenously, and saline and dextrose solution by rectum daily, and both should be continued until he can take a sufficient amount of fluids and food by mouth. Dextrose is readily utilized by all the body tissues, and the saline solution not only prevents dehydration but will increase the secretion of urine, which is especially desirable if the blood

urea should rise to a high figure. When cerebral complications occur, the patient should be kept as quiet as possible; the clinician should continue to direct his attention chiefly to the heart and to the comfort of the patient. It is probably better not to give digitalis soon after coronary thrombosis occurs unless signs of heart failure appear. When the indications for it arise, it may be given in doses based on one-fourth to one-third minim per pound of body weight. If digitalis is given, it is better to discontinue it before the full therapeutic effect is obtained. Other therapeutic measures of great value are absolute rest in bed until the patient is well past the acute stage, good nursing care, and a diet consisting of easily digested and nutritious food. Laxatives should not be given until the patient is well along the road to recovery, but an enema should be given daily. The administration of oxygen may be helpful to those patients in whom cyanosis is a prominent feature. After the patient has recovered from the acute attack, the most important consideration is the supervision of his habits of life so that the heart may be spared any undue strain. When he may get up, how much activity he may be allowed, the use of digitalis and other drugs, his rest in bed each day and his general condition are questions that require much thought.

Paroxysmal Tachycardia Related to Menstrual Period.—Crawford and his associates report two cases of paroxysmal tachycardia of supraventricular origin, in one of which the attacks commenced at puberty and recurred at each subsequent menstrual period. In the other, the paroxysms commenced later in life. In the early stages they occurred at frequent intervals, but for a period of years they have almost invariably had a definite relation to the menstrual period.

Annals of Otol., Rhinol. and Laryngology, St. Louis

41: 1-322 (March) 1932

Malignant Diseases of Nose and Nasal Accessory Sinuses. J. C. Beck and M. R. Guttman, Chicago.—p. 1.
*Some Notes on Etiology and Treatment of Tinnitus Aurium. J. A. Babbitt, Philadelphia.—p. 21.
*Early Intrinsic Cancer of Larynx, Diagnosis and Treatment: Observations on Laryngofissure as Method of Treatment in Series of Cases. G. Tucker, Philadelphia.—p. 36.
*Physiology of Drainage of Nasal Mucus: II. Cilia and Mucin in Mechanical Defense of Nasal Mucosa: Motion Picture Demonstration. A. Hilding, Rochester, Minn.—p. 52.
Surgical Treatment of Certain Unusual Conditions of Frontal Sinus. H. I. Lillie, Rochestetr, Minn.—p. 59.
Malignant Tumors of Nasopharynx with Involvement of Nervous System. F. K. Hansel, St. Louis.—p. 74.
Three Unusual Endoscopic Cases Occurring Consecutively. F. T. Hill, Waterville, Maine.—p. 94.
Blood Count, Metabolic Rate and Blood Pressures in Nasal Sinusitis. E. R. Lewis, Los Angeles.—p. 102.
*Reactions to Infection. G. F. Harkness, Davenport, Iowa.—p. 108.
Some Intimate Studies of Nasal Function: Their Bearing on Diagnosis and Treatment. A. W. Proetz, St. Louis.—p. 125.
Improved Method of Collecting Nasal Cultures. C. S. Linton, St. Louis. p. 141.
*Significance of Allergic Nasal and Sinus Disease in Relation to Asthma. H. L. Baum, Denver.—p. 143.
Bilateral Diffuse Suppurative Labyrinthitis, with Diffuse Suppurative Leptomeningitis, Complicating an Apparently Unilateral Otitis Media. L. K. Guggenheim and Dorothy Wolff, St. Louis.—p. 150.
Cavernous Sinus Thrombophlebitis Following Tonsillectomy: Report of Case. E. H. Campbell, Philadelphia.—p. 170.
Important Points in Four Theories on Otosclerosis. E. P. Fowler, Jr., New York.—p. 175.
Atrophic Rhinitis. J. A. Pratt, Minneapolis.—p. 187.
*Continuous Rhythmic Movements of Palate, Pharynx and Larynx. N. Leshin, Chicago.—p. 194.
Treatment of Papillomas of Larynx with Calcined Magnesia. B. Katz, Los Angeles.—p. 202.
*Electrosurgical Tonsillectomy: Advantages and Limitations of Fractional Electrocoagulation Method. A. R. Hollender, Chicago.—p. 216.
Bárány Noise Apparatus. B. M. Becker, Brooklyn.—p. 222.
Lateral Sinus Thrombosis: Review of One Hundred and Eighty-Four Cases, with Especial Reference to Postoperative Type. L. R. Boies, Minneapolis.—p. 227.
Congenital Bilateral Atresia of Nasopharynx: Report of Case. O. H. Peterson, Corpus Christi, Texas.—p. 238.
Intra-Oral Injuries and Infections of Pharyngeal Lobe of Parotid Gland. L. V. B. Spake, Kansas City, Kan.—p. 240.

Etiology and Treatment of Tinnitus Aurium.—Babbitt considers the syndrome of tinnitus aurium too complex to justify any conventional routine treatment. In the absence of cochlear degeneration or loss of function in the eighth nerve, the tympanic cavity offers a promising surgical field for the relief of tinnitus. The assumption of memory tinnitus without demonstrable labyrinthine or eighth nerve involvement is unwarranted.

Early Intrinsic Cancer of Larynx.—According to Tucker, early intrinsic cancer of the larynx will be recognized when the profession fully realizes the possible significance of chronic hoarseness. Biopsy by means of direct laryngoscopy should be the final step in the diagnostic study. Early "anterior intrinsic cancer" of the larynx is amenable to cure by laryngofissure, which will save the patient's larynx as well as his life, with no operative mortality. The anterior intrinsic group includes a large percentage of all cases of cancer of the larynx. Laryngectomy will cure practically all recurrences after laryngofissure if the cases are properly followed. In twenty-five of thirty cases reported by the author, more than a year has elapsed since laryngofissure. There have been two recurrences in two patients, giving a proportion of lasting cure of 92 per cent to September, 1931. One patient with recurrence is well, without metastasis, following laryngectomy. Partial laryngectomy with postoperative irradiation has given good results when there was a contraindication to laryngectomy in several cases not in the series. The author believes that laryngectomy will cure a large percentage of posterior intrinsic cancer if the diagnosis is made while the lesion is still recent.

Physiology of Drainage of Nasal Mucus.—Hilding calls attention to the fact that ciliary action and a protective, moving film of mucin over the surface are the chief mechanical factors involved in the drainage and defense of the nasal mucosa. The drainage, as activated by the cilia, is rapid, powerful and effective. Gravity plays a minor part. Traction, on the other hand, exerted on the film of mucin as on a net is an important factor in drainage. A complete exchange of the film of secretion over the surface takes place every ten or fifteen minutes in the more active regions in the nose, and about once an hour in the inactive regions. The drainage is directed backward with a strong tendency to flow toward the best protected areas; namely, the middle and inferior meatuses. The inactive anterior third of the nose drains largely through these meatuses by means of traction. The sinuses (as represented by the frontal sinus of the dog) have definite and extremely efficient drainage that is spiral in direction. With these points in mind, the necessity of changing the point of view of treatment of nasal conditions from an anatomic to a physiologic one becomes apparent.

Reactions to Infection.—Harkness states that the primary resistance to infections and foreign proteins is measured by the cellular reaction capacity. Secondary factors are certain substances, antibodies, in the humoral element of the blood that are themselves the product of the primary cellular reaction capacity. Cellular phagocytosis is the most effective weapon that the cell possesses in eliminating foreign protein material. A primary avidity for phagocytosis is retained not only by the leukocytic cells of the blood but by certain fixed tissue and wandering tissue cells. The reticulo-endothelial system probably includes the cellular elements responsible for the production of antibodies; it constitutes a hematopoietic system and embraces those fixed tissue cells and wandering connective tissue cells that have retained the greatest avidity for phagocytosis. Specificity of cellular reaction is the basis of infection control and immunity. It seems probable that, when the secret of specificity of cellular reaction is known, the major problems of immunity and infection will be solved. The so-called reticulo-endothelial system seems to offer the most fruitful field for the investigation of this problem, first, as the source of the humoral substances and the cellular elements of the blood that take an active part in combating infection, and, secondly, through possessing cells that seem to have powers of selectivity. The secret of cell specificity and selectivity in production and activity forms the crux of the problem.

Allergic Nasal and Sinus Disease in Relation to Asthma.—Baum is of the opinion that nasal and sinus disease is primarily not an etiologic factor in the causation of asthma. Asthma and nasal and sinus disease are often concomitant manifestations of the same condition in two different localities in the same patient, both dependent on the same underlying etiologic factors. Nasal and sinus operations should not be performed primarily for the cure of asthma, only such surgery being done as would be indicated by the same observations in the upper respiratory tract of the nonasthmatic patient. Allergic manifestations in the nose and sinuses should serve as warning finger posts, pointing the way to danger, and the patient should

be so advised and should have his state of hypersensitization studied and treated—not only as a therapeutic measure directed to the cure of nasal symptoms but as a prophylactic measure calculated to prevent more serious consequences later.

Rhythmic Movements of Palate, Pharynx and Larynx.—Leshin reports that continuous synchronous rhythmic movements of the palate, pharynx and larynx are comparatively rare; only twenty-nine cases have been found in the literature. The review of these cases shows a definite relationship of these movements to organic disease of the central nervous system. No localizing neurologic significance can be ascribed to them as yet because of the varied pathologic changes found in the few postmortem examinations made.

Electrosurgical Tonsillectomy.—While diathermy for removing the tonsils has gained popular favor and has become the method of choice of some specialists, Hollender does not recommend its use as a substitute for surgery for the majority of cases. There are, however, definite advantages in an adequate substitute method when surgery is considered hazardous in the presence of certain systemic diseases. Since electrocoagulation of the tonsils is a scientifically sound method for selected cases, the specialist should familiarize himself with its technic.

Archives of Neurology and Psychiatry, Chicago

27: 489-760 (March) 1932

Sensation: I. Depth, Distribution and Probable Identification in Prepuce of Sensory End-Organs Concerned in Sensations of Temperature and Touch; Thermometric Conductivity. H. C. Bazett, B. McGlone, R. G. Williams and H. M. Lufkin, Philadelphia.—p. 489.
Nerve Degeneration in Poliomyelitis: I. Vital Staining Methods with Neutral Red Applied to Nerve Degeneration. W. P. Covell and J. L. O'Leary, St. Louis.—p. 518.
Neurologic Problems in Childhood. B. Crothers, Boston.—p. 525.
*Progressive Facial Hemiatrophy: Report of Three Cases. L. Archambault and N. K. Fromm, Albany, N. Y.—p. 529.
Transection of Spinal Cord in the New-Born: Case with Autopsy and Comparison with Normal Cord at Same Age. R. K. Byers, Boston.—p. 585.
*Chronic Progressive Vascular Subcortical Encephalopathy: Chronic Progressive Subcortical Encephalitis of Binswanger. F. J. Farnell, Providence, R. I., and J. H. Globus, New York.—p. 593.
*Histologic Changes in Brain in Cases of Fatal Injury to Head: III. Reaction of Microglia and Oligodendroglia. C. W. Rand and C. B. Courville, Los Angeles.—p. 605.
*Familial Progressive Muscular Atrophy. G. A. Moleen, Denver.—p. 645.
Principles of Gestalt in Copied Form in Mentally Defective and Schizophrenic Persons. Lauretta Bender, Baltimore.—p. 661.
Reflex Response Latencies in Manic and Depressive Cases of Cyclothymic Group and in Cases of Catatonic Stupor of Schizophrenic Group. J. M. Dorsey, Ann Arbor, Mich., and L. E. Travis, Iowa City.—p. 687.
*Cerebrospinal Fluid in Differential Diagnosis of Brain Tumor. F. Fremont-Smith, Boston.—p. 691.

Progressive Facial Hemiatrophy.—Archambault and Fromm state that progressive facial hemiatrophy is a well defined syndrome having distinctive clinical features, resulting from widely varying types of lesions, which apparently involve in selective fashion the sympathetic division of the vegetative nervous system at some point in either its central or its peripheral course. The condition is much more common than was formerly believed, may develop at any period of life, and exhibits no material predilection for the female sex or for the left side, as was maintained by classic authors. The actual etiology of facial hemiatrophy still remains largely speculative, but it is believed that in many cases immediately antecedent infections and faciocervical traumas are an actual causative factor. Aside from its undeniably close relationship to scleroderma, which itself may be responsible for some cases, the various theories advanced to provide a logical pathogenesis, with the exception of the sympathetic theory, are believed to be totally untenable. Three cases of typical facial hemiatrophy are presented in detail, and all three exhibited unescapable evidence of disturbances in the domain of the cervical sympathetic system.

Chronic Progressive Vascular Subcortical Encephalopathy.—Farnell and Globus describe a case of Binswanger's chronic progressive encephalitis. It differs from the typical case in that it occurred in a somewhat younger person, ran a rather rapid clinical course, and manifested decerebrate rigidity as a striking atypical feature. The latter may find explanation in the degenerative changes noted in the substantia nigra. The disease is degenerative; Binswanger, though recognizing it as such, erred in choosing the term encephalitis. Instead, the term chronic progressive vascular subcortical encephalopathy is suggested as more descriptive of the lesion and of its possible etiology. The disease presents no clearly distinguishable clinical diagnostic features but merits consideration in the differential diagnosis of atypical instances of cerebral arteriosclerosis.

Histologic Changes in Brain in Cases of Fatal Injury to Head.—In studying histologic changes in the human brain consequent to injury, Rand and Courville utilized the newer metallic methods, as well as routine stains. In this contribution they limit themselves to a consideration of the microglia and oligodendroglia. The history of these two elements is briefly traced, with especial reference to more recent studies with specific metallic methods. To the present time the reaction of these elements to injury has been critically studied only in experimental animals. The authors attempt to follow the changes in the microglia and oligodendroglia in cases of fatal injuries to the human brain. They selected twenty-four cases from a larger series which represent fairly typically the sequence of changes occurring in edema, contusion and laceration, and gross and petechial hemorrhages of the brain. It was found that the microglia react to local destruction and disintegration of tissue. The oligodendroglia, on the contrary, are altered in response to general or widespread processes, particularly edema. Transitional forms of microglia were found within the first few hours following contusion or laceration of the brain. Compound granular corpuscles, however, were found only after three or four days and remained as long as the products of disintegration were present. Typical transitional stages could be traced from normal microglia to fully developed phagocytes. The oligodendroglia became enlarged and vacuolated almost immediately following injury. Within a few hours, typical widespread acute swelling of the cells was present. This reaction undoubtedly persists for weeks, especially in the region about local injuries. Both types of cells undergo destruction along with the nerve cells and neuroglia, at the margin of lacerations and in severely contused areas. Evidences of direct cell division were observed in both types of cells within a few hours after injury, and it was especially active during the first few days. Mitosis was found only in fully developed compound granular corpuscles. Changes in the astrocytes and nerve cells will be described in later communications.

Familial Progressive Muscular Atrophy.—Moleen presents a case of a symmetrical type of muscular atrophy, chronic and progressive in course, which had been under observation for over twenty years. Three brothers were subjects of the same disease; one died without the condition having been studied pathologically; one forms the basis of the author's study; the third is still living at the time of the report, in an advanced state of the disease. The absence of group muscular involvement referable to the enlargements of the cord is noteworthy in all three cases. The marked changes in the voluntary muscles reached a degree of almost complete disappearance of the fibers without evidence of inflammatory reaction. The negligible involvement of the spinal gray matter and the apparently normal functioning condition of the polar cells is remarkable if not unique. Noninflammatory degeneration of the myelinated elements of the peripheral nerves appears to constitute the primary pathologic lesion. The suspicion expressed with reference to the possible primary structural defect is strengthened by the familial incidence.

Cerebrospinal Fluid in Differential Diagnosis of Brain Tumor.—According to Fremont-Smith, a false low cerebrospinal fluid pressure may be caused either by dehydration due to catharsis, diarrhea or excessive vomiting, or by obstruction to free communication between the lumbar manometer and the ventricular fluid. Jugular compression should always be performed to test this communication, which may be completely or partially interrupted by a nerve root obstructing the tip of the needle, by a spinal subarachnoid block due to a spinal cord tumor, adhesive meningitis, and so on, or by a tumor of the posterior fossa or the third ventricle. If jugular compression fails to give a prompt rise in the lumbar manometer, abdominal compression should be tried. If abdominal compression fails to give a prompt rise, the needle is not properly in place or is obstructed by a nerve root. Prompt response to abdominal

compression gives assurance that the lumbar manometer communicates freely with the lumbar fluid. When the spinal subarachnoid space is blocked by a tumor, Pott's disease or adhesions, abdominal compression gives a more prompt and more marked rise in the lumbar manometer than does the jugular compression. A brain tumor nearly always causes increased cerebrospinal fluid pressure unless the patient has been dehydrated. The pressure is often elevated for several months before the disks become choked. Very early tumors, infiltrating gliomas of the pons and pituitary tumors that remain within the sella turcica may give normal cerebrospinal fluid pressure. The author presents in tabular form the cytologic and chemical changes that occur in the cerebrospinal fluid in brain tumor and in various other pathologic conditions of the brain and spinal cord.

Archives of Otolaryngology, Chicago

15: 339-502 (March) 1932

Bilateral Abductor Paralysis: Operative Treatment by Submucous Resection of Vocal Cords. W. B. Hoover, Boston.—p. 339.
*Intracranial Complications of Otitic Origin. I. Friesner and J. G. Druss, New York.—p. 356.
Pulmonary Metastasis from Hypernephroma Diagnosed by Bronchoscopy. P. P. Vinson and W. J. Martin, Jr., Rochester, Minn.—p. 368.
Value of Roentgenologic Examination of Neck. M. L. Sussman, New York.—p. 371.
Tuberculoma of Laryngeal Ventricle Resembling Prolapse of Mucous Membrane: Report of Case. E. F. Ziegelman, San Francisco.—p. 382.
*Histopathologic Reactions of Tracheotomic Wound: Experimental Study. L. Richards and F. Glenn, Boston.—p. 389.
Interrelation of Allergy and Otolaryngology. W. V. Mullin, Cleveland.—p. 413.
Otologic Observations in Cases of Intestinal Intoxication in Infants. J. L. Maybaum, New York.—p. 418.
Pneumococcic Membranous Nasopharyngitis in Infants. N. Fox, Chicago.—p. 426.
*Local Anesthesia in Tonsillectomy. H. A. Trotter, Buffalo.—p. 435.

Intracranial Complications of Otitic Origin.—Friesner and Druss call attention to the frequency with which disease extending from the middle ear and mastoid becomes localized about the posterosuperior portion of the pyramid. A bone focus at this site may develop a brain abscess in either the posterior or the middle fossa or a meningitis. The otologic surgeon must be equipped as a cranial surgeon as well. The authors believe that, with a technic such as Eagleton has described, these foci may be exposed. Furthermore, the question is again raised whether exploration of the brain might not be attended with better results if it were made through such an exposure.

Histopathologic Reactions of Tracheotomic Wound.—According to Richards and Glenn, simple incisions in the trachea, if not infected, tend to heal with great rapidity. The defect is closed by a connective tissue growth, without any evidence of true regeneration of cartilage. The mucous membrane between heals rapidly, though with a modified type of epithelium. There is little if any tendency for encroachment on the tracheal lumen by the healing tissues in this type of wound. The presence of a tracheal cannula delays the healing of the wound and increases the amount of connective tissue formed about it. So long as there is an adequate opening in the trachea for the cannula and no pressure against the cartilaginous edges, there is very little tendency toward the formation of granulations large enough to cause any appreciable obstruction to the tracheal lumen. Infection about the cannula, occasioned primarily by too close approximation of the wound edges about it, increases the tendency to connective tissue formation. With a large anterior tracheal defect there is little tendency for the superficial tissues to fall in and encroach on the lumen of the trachea. With a tracheal fistula, in the absence of a tube, the wound tends to close rapidly without any impairment of the tracheal lumen.

Local Anesthesia in Tonsillectomy.—In performing tonsillectomy, Trotter has used quinine and urea hydrochloride solution, 1 per cent in strength, 2.5 cc. to each tonsil. Ten minutes is allowed for full anesthesia. In 500 cases, nerve block anesthesia with quinine and urea hydrochloride proved satisfactory. The author has not experienced any complications or ill effects from either quinine and urea hydrochloride or epinephrine hydrochloride. The anesthesia at the time of operation is excellent, and the recovery of the patient is much smoother because the anesthesia lasts for several days.

Canadian Public Health Journal, Toronto

23: 103-152 (March) 1932

Rural Sanitation in Quebec from Provincial Standpoint. A. Lessard, Quebec, Que.—p. 103.
Challenge of Tuberculosis. D. A. Stewart, Ninette, Manit.—p. 109.
Mental Hygiene of Critical Epochs of Life. C. A. Baragar, Edmonton, Alta.—p. 118.
Pathogenic and Antigenic Properties of Staphylococcus Toxin. C. E. Dolman, Toronto.—p. 125.

Endocrinology, Los Angeles

16: 109-224 (March-April) 1932

*Endocrine Treatment of Paget's Disease. L. Berman, New York.—p. 109.
*Hyperpituitarism Beginning in Infancy: The Alton Giant. L. H. Behrens and D. P. Barr, St. Louis.—p. 120.
*Specificity in Action of Anterior Pituitary of Different Mammals as Well as of Urine of Pregnant Women on Sex Organs and Thyroid Gland of Immature Female Guinea-Pigs. L. Loeb, St. Louis.—p. 129.
Effects of Dietary Deficiency of Iodine on Thyroid and Parathyroid Glands in Rat. C. M. Jackson and M. T. P'an, Minneapolis.—p. 146.
Weight of Gold Fish Influenced by Testicular Substance Diet. L. L. Stanley and G. L. Tescher, San Quentin, Calif.—p. 153.
Cortin in Case of Possible Adrenal Insufficiency During Pregnancy. F. A. Hartman, G. W. Thorn and I. W. Potter, Buffalo.—p. 155.
*Quinine and Iodine in Exophthalmic Goiter. I. Bram, Philadelphia.—p. 157.
*Syndrome of Adrenal Hemorrhage in the New-Born. M. A. Goldzieher and M. B. Gordon, Brooklyn.—p. 165.
*Glycopenia: Efficacy of High Fat Diets in Treatment of Chronic Hypoglycemia. H. C. Shepardson, San Francisco.—p. 182.
Humoral Factors Affecting Uterine Motility. S. R. M. Reynolds, Baltimore.—p. 193.

Endocrine Treatment of Paget's Disease.—According to Berman, Paget's disease is an entity representing a disturbance of bone metabolism involving an imbalance between the parathyroids and the suprarenals, there being excessive function of the former and deficient function of the latter. In sixteen out of eighteen cases, the regular administration of suprarenal cortex hormone with a high calcium diet produced a relief of the pains in the extremities and the head, a restoration of the sense of health and well being with a return to occupational activity, and an apparent arrest of the disease as shown by the cessation of development of deformity and the symptoms of sympathetic nervous system irritability. The course of Paget's disease is chronically protracted; in general, its progress is downward. The results of the cases reported, although they are limited in number and have still to be checked and watched, justify the conclusion that suprarenal cortex hormone is a valuable remedy for a disease which has heretofore had no remedy.

Hyperpituitarism Beginning in Infancy.—Behrens and Barr report a case of preadolescent gigantism of pituitary origin in a youth, aged 13. An extraordinary feature was the beginning of abnormal development in early infancy. Growth has been steady without spurts during the entire period of childhood and has continued at an undiminished rate during nineteen months of observation. Of special interest is the low basal metabolic rate accompanied by subnormal temperature and cold hands and feet. Remarkable, also, is the extraordinary size of the mastoid cells and the pneumatization of the squamous portion of the temporal bone.

Specific Action of Anterior Pituitary.—Loeb states that samples of anterior pituitary substance from different species of mammals as well as of urine of pregnant women differ from one another in their effects on the genital organs and thyroid of immature guinea-pigs; these effects in the case of each species are specific. He discusses the possible interpretations of these observations, which are more readily compatible with the view that at least two constituents of the anterior pituitary are responsible for these effects than that the latter are attributable to the action of different quantities of one and the same substance, and that in these different species these two substances are distributed in different proportions. In the guinea-pig only guinea-pig anterior pituitary seems as a rule to be able to induce ovulation. The author recognized intermediate states of proliferation of the vagina which occur under the influence of large growing or mature follicles under certain conditions; there is some indication that the interstitial gland and theca interna lutein bodies, if present in sufficient quantity, may exert functions similar to that of the corpus luteum and, under certain conditions, inhibit ovulation and full proliferation of the vagina.

Quinine and Iodine in Exophthalmic Goiter. — Bram calls attention to the fact that persons with exophthalmic goiter are relatively insusceptible to cinchonism and can take quinine in doses of from 30 to 90 grains (2 to 6 Gm.) daily with impunity and often with benefit. This is the basis of the quinine test for hyperthyroidism especially when associated with exophthalmic goiter, and is again recommended as a safe, simple and dependable diagnostic procedure. The effects of quinine in exophthalmic goiter resemble, in many respects, those of iodine. Following its use there occurs in the average case an amelioration of the symptomatology of the syndrome. Quinine in large doses is a valuable asset in the armamentarium of the internist who has sufficient experience with subjects of exophthalmic goiter to realize the complex needs of these patients. It must be emphasized that quinine is not the mainstay but is a valuable asset in the broad regimen of therapy which must include attention to discoverable etiologic factors, diet, psychotherapy and proper environment. Quinine differs from iodine administration in exophthalmic goiter in the following respects: (1) Quinine can be given for an indefinite period of time without danger of flaring up of symptoms; (2) it does not produce the marked increase in size of the thyroid that often occurs after iodine administration, and (3) while the beneficial effects of quinine are slower in appearing than those of iodine, the results are continuous and cumulative. Quinine and iodine may complement each other in treatment. Also, quinine in proper dosage given in combination with iodine in small doses appears in the average case to serve as a deterrent to the classic rise in symptoms following prolonged iodine administration. When recovery is reached, the singular tolerance to large doses of quinine gives way to normal susceptibility to cinchonism.

Suprarenal Hemorrhage in the New-Born.—Goldzieher and Gordon believe that an intra vitam diagnosis of suprarenal hemorrhage in the new-born may be made on the basis of a definite syndrome. This consists of two groups of symptoms: those due to acute suprarenal insufficiency and those produced by internal hemorrhage. Either one of these may predominate. Symptoms of acute insufficiency consist of acute onset, high temperature, rapid respirations, petechial or purpuric rash, cyanosis and metabolic changes—especially hypoglycemia. Associated with these are gastro-intestinal and nervous disturbances. These may be accompanied or masked by signs of internal hemorrhage (shock, collapse, weak pulse) and local signs of abdominal distress, distention and the presence of a mass in one or both kidney regions. Five cases are reported in which an intra vitam diagnosis was made of suprarenal hemorrhage in the new-born. On the basis of the syndrome presented in these cases, an analysis is made of eighty-one cases of the condition both in the new-born and in infants. The treatment suggested by the authors consists of intravenous transfusion of blood, injections of dextrose, and the administration of a potent suprarenal cortical extract.

Glycopenia.—Shepardson reviews the various causative factors, besides hyperinsulinism, producing glycopenia. He reports two cases in which the hypoglycemia apparently resulted from primary hyperinsulinism. It is suggested, in contrast to the usual increase in carbohydrate intake, that the diet be markedly reduced in carbohydrates and that a relatively high fat diet be substituted, in the treatment of essential glycopenia. Results in the cases reported indicate that such alteration of the dietary formula apparently has an inhibiting influence on the incretory function of the pancreas.

Georgia Medical Association Journal, Atlanta

21: 85-127 (March) 1932

Some Observations on Spinal Anesthesia. C. H. Richardson, Macon.—p. 85.
Progress in Psychiatry. N. M. Owensby, Atlanta.—p. 90.
Case For and Against Coffee. G. M. Niles, Atlanta.—p. 94.
Tetany Following Thyroidectomy: Case Reports. B. H. Clifton, Atlanta.—p. 97.
Transplantation of Ureters for Exstrophy of Bladder: Case Report. B. T. Wise, Americus.—p. 100.
Atavistic Human Foot: Its Developmental Significance. G. A. Williams, Atlanta.—p. 103.
Closed Tube Method of Treatment of Acute Thoracic Empyema. D. H. Poer, Atlanta.—p. 106.
Foreign Body in Rectum: Case Report. M. C. Pruitt, Atlanta.—p. 116.

Iowa State Medical Society Journal, Des Moines

22: 107-158 (March) 1932

Lingual Quinsy: Case Report. H. H. Lamb, Davenport.—p. 107.
Endometriosis of Abdominal Wall. H. E. Kleinberg, Des Moines.—p. 109.
Pernicious Anemia and Subacute Combined Degeneration of Spinal Cord. T. J. Pfeffer, De Witt.—p. 114.
The "Nervous" Child. Julia F. Hill, Des Moines.—p. 118.
Modified Barraquer Cataract Operation. O. Wolfe, Marshalltown.—p. 123.
Brain Abscess: Question of Treatment. H. A. Bender, Waterloo.—p. 130.

Journal of Bacteriology, Baltimore

23: 195-279 (March) 1932

Further Studies on Effect of Various Carbohydrates on Production of Diphtheria Toxin, with Especial Reference to Its Flocculating Titer and Final *p*H. Elizabeth Lee Hazen and G. Heller, New York.—p. 195.
Spirella Sp.? Isolated from Guinea-Pig. Henrietta S. Rhees, Rochester, N. Y.—p. 211.
Studies on Antibodies: IV. Carbohydrate Content as Criterion of Suitability of Broth for Culture of Pneumococci. Grace McGuire, Eugenia Valentine, Elinor Whitney and K. G. Falk, New York.—p. 223.
Id.: V. Use of Green Bananas in Mediums for Culture of Pneumococci. K. G. Falk, Eugenia Valentine, Grace McGuire and Elinor Whitney, New York.—p. 235.
Milk-Borne Septic Sore Throat and Scarlet Fever and Their Relation to Beta Hemolytic Streptococci. Anna W. Williams and Caroline R. Gurley, Assisted by Eva Sobel and Margaret Castelda, New York.—p. 241.
Biochemical Characters of Human and Animal Strains of Hemolytic Streptococci. P. R. Edwards, Lexington, Ky.—p. 259.
Atypical (Slow) Lactose Fermenting Bacillus Coli. F. S. Jones, M. Orcutt and R. B. Little, Princeton, N. J.—p. 267.

Journal of Experimental Medicine, New York

55: 505-681 (April) 1932

*Influence of Ligation of Pancreatic Ducts of Dogs on Serum Amylase Concentration. C. E. Johnson and C. H. Wies, New Haven, Conn.—p. 505.
Examination of Mechanism of Pneumococcus Immunity by Means of Bactericidal Measurements: I. Reaction Between Anticarbohydrate Antibody and Purified Specific Carbohydrate. H. K. Ward, Boston.—p. 511.
Id.: II. Reaction Between Anticarbohydrate Antibody and Type-Specific Products of Organism. H. K. Ward, Boston.—p. 519.
Further Separation of Types Among Pneumococci Hitherto Included in Group IV and Development of Therapeutic Antiserums for These Types. Georgia Cooper, Carolyn Rosenstein, Annabel Walter and Lenore Peizer, New York.—p. 531.
Quantitative Studies on Precipitin Reaction: Determination of Small Amounts of Specific Polysaccharide. M. Heidelberger and F. E. Kendall, New York.—p. 555.
*Studies on Cultivation of Typhus Fever Rickettsia in Presence of Live Tissue. Clara Nigg and K. Landsteiner, New York.—p. 563.
Age Factor in Velocity of Growth of Fibroblasts in Healing Wound. E. L. Howes and S. C. Harvey, New Haven, Conn.—p. 577.
*Reaction of Rabbits to Streptococci: Comparative Sensitizing Effect of Intracutaneous and Intravenous Inocula in Minute Doses. M. P. Schultz and H. F. Swift, New York.—p. 591.
Renal Thresholds for Hemoglobin in Dogs: Depression of Threshold Due to Frequent Hemoglobin Injections and Recovery During Rest Periods. J. A. Lichty, Jr., W. H. Havill and G. H. Whipple, Rochester, N. Y.—p. 603.
Renal Threshold for Hemoglobin in Dogs Uninfluenced by Mercury Poisoning. W. H. Havill, J. A. Lichty, Jr., G. B. Taylor and G. H. Whipple, Rochester, N. Y.—p. 617.
*Tolerance for Mercury Poisoning Increased by Frequent Hemoglobin Injections. W. H. Havill, J. A. Lichty, Jr., and G. H. Whipple, Rochester, N. Y.—p. 627.
Hemoglobin Injections and Conservation of Pigment by Kidney, Liver and Spleen: Influence of Diet and Bleeding. W. V. Newman and G. H. Whipple, Rochester, N. Y.—p. 637.
Iron Content of Blood Free Tissues and Viscera: Variations Due to Diet, Anemia and Hemoglobin Injections. R. P. Bogniard and G. H. Whipple, Rochester, N. Y.—p. 653.
Studies in Serology of Syphilis: VI. Induction of Antibodies to Tissue Lipoids (Positive Wassermann Reaction) in Normal Rabbits. H. Eagle, Baltimore.—p. 667.

Influence of Ligation of Pancreatic Ducts of Dogs on Serum Amylase.—Johnson and Wies demonstrated a sharp contrast in regard to the postoperative amylase concentration of the serums of dogs, depending on whether ligation of the pancreatic ducts was or was not a part of an otherwise prescribed operation. The characteristic feature is a marked rise of several hundred per cent in serum amylase concentration, sustained for several days, which is observed when the pancreatic ducts have been ligated.

Cultivation of Typhus Fever Rickettsia in Presence of Live Tissue.—According to Nigg and Landsteiner, Rickettsia prowazeki can be cultivated for many generations in vitro,

without diminution in numbers or virulence, in mediums similar to those described by Maitland, Rivers and others for the cultivation of certain viruses. In all probability, such cultures can be maintained indefinitely. It has been impossible, thus far, to cultivate the typhus rickettsia without employing living tissue.

Reaction of Rabbits to Streptococci.—Schultz and Swift rendered rabbits very hypersensitive by relatively small doses of green streptococci given intracutaneously, and somewhat less hypersensitive by similar doses of heat-killed vaccine prepared from hemolytic streptococci. Animals receiving the same doses intravenously gave, on subsequent testing, lesions slightly more marked than normal controls; but these lesions were qualitatively hard and nodular compared with the large edematous lesions in the cutaneously sensitized group. There was no parallelism between the degree of cutaneous or ophthalmic hypersensitivity and agglutinin titer in the blood serum. The authors believe that bacterial hypersensitivity to whole streptococci depends more on previously induced focal infection than on circulating antibodies.

Tolerance for Mercury Poisoning Increased by Frequent Hemoglobin Injections.—Havill and his associates report that frequent injections of superthreshold amounts of dog hemoglobin will cause deposits of pigment material in the renal tubular epithelium. When this has happened, the dog will survive minimal lethal doses of mercuric chloride with little evidence of renal injury. In fact, some dogs will tolerate twice the minimal lethal dose without severe reaction. There is no evidence that continued injections of dog hemoglobin in these amounts will cause any injury or functional disability of the kidney. Rest periods will effect a disappearance of this pigment in the renal tubules.

Journal of Lab. & Clinical Medicine, St. Louis

17: 507-610 (March) 1932

Broader Aspects of Routine Cultural Examinations. Ruth Gilbert, Albany, N. Y.—p. 507.
Use of Animals in Routine Diagnostic Work. K. F. Meyer, San Francisco.—p. 510.
Anaerobic Technic. M. H. Soule, Ann Arbor, Mich.—p. 519.
Technic for Isolation of Streptococci. W. J. Stainsby and Edith E. Nicholls, New York.—p. 530.
Preparation of Vaccines. L. W. Famulener, New York.—p. 538.
*Vaccines in Clinical Medicine. R. A. Keilty, Washington, D. C.—p. 545.
Examination for Pathogenic Fungi. F. W. Shaw, Richmond, Va.—p. 549.
*Bacteriology of Pus. J. F. Norton, Detroit.—p. 558.
Bacteriologic Examination of Blood and Spinal Fluid. W. J. Stainsby and Edith E. Nicholls, New York.—p. 566.
*Bacteriology of Nose and Throat. W. C. Noble, Jr., and D. H. Brainard, New York.—p. 573.
Bacteriology of Bile Obtained by Duodenal Tube Biliary Drainage. B. B. V. Lyon, Philadelphia.—p. 583.
*Laboratory Methods in Treatment of Pneumonia. N. Plummer, New York.—p. 594.

Vaccines in Clinical Medicine.—Keilty considers that the position of vaccines, theoretically, experimentally and clinically, is today one of imbalance. There has been too much accomplished in the past to disregard them entirely, and a middle ground is an acceptable attitude. A vaccine is defined as a vaccinogenic solution having the power of producing specific antibodies in vivo. Vaccines prepared from a multiple flora are selected by the author exclusively on their quantitative appearance in culture and their allergic cutaneous reactions. Vaccines must start out with the study and isolation of specific etiologic organisms. They must be prepared in such a way that the vaccinogenic factor is as nearly unaltered as possible, but no solution should be used in which a viable organism has any chance of becoming virulent. The present trend in dosage is to start with small amounts, 0.1 cc., increased in 0.1 cc. stages and given every other day over a long period. Each individual case is an entity and for this reason the best results are obtained after experience. In the preparation of a vaccine, one should pay no attention to the bacterial count but make heavy suspensions and vary the dosage according to general reactions. The desirability of general reactions for immunity producing purposes is stressed.

Bacteriology of Pus.—Norton emphasizes the fact that the proper collection of material is essential for a satisfactory laboratory examination. Skin contaminants must be rigidly excluded. Too great emphasis cannot be placed on this point, if the laboratory worker is to give the clinician a true picture of the bacteriology of the material submitted. The first step in laboratory examination of pus is, under all conditions, the preparation and examination of a proper smear on a microscope slide. Care should be taken to make thin film preparations. A stain according to Gram's method gives the most valuable indication of any single stain but will not, of course, detect the tubercle bacillus. Hence it is extremely desirable for the laboratory to be furnished with accurate information concerning the source of the material. Various modifications of the original Gram method have been introduced. The author's experience has been that careful attention to the details of the technic is fully as valuable in yielding consistent results as any modification of the solutions employed. This is particularly true in regard to the alcohol (or acetone) decolorization. In "old" pus the Gram stain may be uncertain. In many laboratories, the methylthionine chloride stain is used for the detection of gonococci. While this is reasonable under special conditions in which the clinician and the laboratory work in close cooperation, it is not to be recommended. Furthermore, it is highly desirable to make a Gram stain if organisms resembling the gonococci are seen in the material submitted, so little is gained by the use of methylthionine chloride. For pus from tuberculous conditions, the Ziehl-Neelsen method, or some of its modifications, is in general use. The methylthionine chloride stain may be used for detecting organisms resembling diphtheria bacilli, while either methylthionine chloride or gentian violet is useful for staining the spirochetes and fusiform bacilli characteristic of Vincent's infection.

Bacteriology of Nose and Throat.—Noble and Brainard call attention to the fact that many bacterial species are to be found in the nasal passages and throat, and that the same or apparently the same species occur on both the healthy and diseased mucous membrane. Therefore it is difficult, in the absence of a definite lesion, to appraise satisfactorily the clinical significance of many of the species encountered in a bacteriologic examination. This is especially true of the streptococci, whether green, indifferent or hemolytic, the pneumococci, staphylococci gram-negative cocci and hemoglobinophilic bacilli. If one considers the hemolytic streptococci as an example, one must remember that they constitute a large group of many strains which differ greatly in their pathogenicity and virulence, and that while certain strains may give rise to scarlet fever or to septic sore throat, others may be innocuous. The finding of hemolytic streptococci, therefore, is not necessarily significant, but the finding of a particular strain may be of great significance. Unfortunately, the demonstration of a particular pathogenic strain is not always easy and usually is not practical in routine examinations. The rôle of the anaerobic bacteria as incitants of colds and influenza is unknown; they would appear to be part of the normal flora and of little if any pathogenicity, but additional experimental evidence may change these views. Recent work has again directed attention to the probability that a filtrable virus is the primary cause of certain respiratory infections, preparing the way for the secondary complications, which may be brought about by many of the common bacteria harbored in the upper respiratory tract.

Laboratory Methods in Treatment of Pneumonia.—Plummer states that, during the past few years, pneumonia has been the subject of extensive investigation, but most of the discoveries have not yet reached the stage of practical significance. Perhaps the most important advance toward the solution of this problem has been the chemical fractionation of the pneumococcus. This information has recently been applied by Avery and Dubos to the development of an enzyme that splits the carbohydrate fraction of the type III pneumococcus and by so doing destroys the toxicity of this organism. Already these scientists have been able to protect mice against the type III pneumococcus infection, and it is probable that this agent will be of value in the treatment of pneumonia. The majority of pneumonia patients today are not given the benefit of typing, even when the advantages of type diagnosis are so striking, as shown by the following example: Two pneumonia patients with the same amount of lung involvement and the same degree of toxemia are seen late in their infection. Assume that one is a

type I with a negative blood culture and the other a type III with a positive blood culture. The type III patient will almost certainly die, the type I has a good prognosis, and, if given the benefit of an efficient therapeutic agent, such as concentrated serum, will almost certainly recover. In the up-to-date management of pneumonia, the sputum should be carefully examined and rapidly typed as a guide to prognosis and to insure the prompt administration of serum in types in which it has been found efficacious. Blood cultures and other laboratory procedures should be instituted in order to recognize early the presence of septicemia and other complications. In short, it is evident that the modern treatment of pneumonia is dependent on the utilization of the latest bacteriologic and immunologic methods.

Michigan State M. Soc. Journal, Grand Rapids

31: 243-300 (April) 1932

Relation of Physician to Public. E. S. Judd, Rochester, Minn.—p. 243.
Rôle of Amino-Acids in Animal Organism: I. Cystinuria and Cystine Calculi, Surgical and Medical Problem. H. B. Lewis, Ann Arbor. —p. 249.
Present Status of Prostatic Surgery. H. W. Plaggemeyer and C. G. Weltman, Detroit.—p. 254.
*Primary Ileostomy in Treatment of Generalized Peritonitis. E. C. Baumgarten, Detroit.—p. 257.
Practice of Medicine by Corporations: Partial Survey and Study of Problems Involved. F. C. Warnshuis, Grand Rapids.—p. 259.
Septic Abortion Associated with Meningococcic Meningitis. W. E. Larson and B. H. Starman, Wyandotte.—p. 267.
Plea for Preliminary Iridectomy. J. G. Huizinga, Grand Rapids.—p. 268.
Dislocation of Carpal Bones: Scaphoid and Semilunar: Report of Case. F. T. Andrews, Kalamazoo.—p. 269.
Neurologic and Psychopathic Manifestations of Pernicious Anemia. C. Kiely, Cincinnati.—p. 272.
Myasthenia Gravis Following Electrical Shock. F. G. Lindemulder, Ann Arbor.—p. 275.
The Doctor's Log. W. J. Stapleton, Jr., Detroit.—p. 277.
Michigan's Department of Health. C. C. Slemons, Lansing.—p. 281.

Primary Ileostomy in Treatment of Generalized Peritonitis.—Baumgarten states that patients with generalized peritonitis of appendiceal origin should be treated as cases of intestinal obstruction. Intestinal drainage is paramount in the treatment of these patients. Primary ileostomy is a satisfactory means of securing intestinal drainage, controlling dehydration and the acid-alkali balance of the blood plasma. Persistent fecal fistula is not a common complication. Nineteen cases of generalized peritonitis following appendicitis are reported by the author with three deaths, or a mortality rate of 15.7 per cent.

Nebraska State Medical Journal, Lincoln

17: 132-176 (April) 1932

Wayside Gleanings of the Pioneer Surgeon. J. E. Summers, Omaha.—p. 146.
Some Annotations on the Summers Syllabus. F. A. Long, Madison. —p. 151.
Clinical Aspects of Cancer Problem. G. W. Crile, Cleveland.—p. 153.
Concerning Nature of Epigastric Hernia and Its Relation to Gastric and Other Disturbances. L. Freeman, Denver.—p. 159.
Indications for Intestinal Drainage: Enterostomy and Colostomy: Technic of Operation: Report of One Hundred and Thirty-Four Cases. D. Macrae, Jr., Council Bluffs, Iowa.—p. 161.
Surgical Dynamics of Alimentation. C. A. Roeder, Omaha.—p. 165.

New England Journal of Medicine, Boston

206: 601-658 (March 24) 1932

*Craniocerebral Injuries from Point of View of General Surgeon. E. H. Risley, Waterville, Maine.—p. 601.
Hospitalization of Cancer in Massachusetts. G. H. Bigelow and H. L. Lombard, Boston.—p. 607.
*"Avertin" as Basal Anesthetic. F. W. Marvin, Boston.—p. 609.
Blood Pressure Fall Occurring in "Avertin" Anesthesia. G. W. Taylor and C. C. Lund, Boston.—p. 612.
Bill to Register Chiropractors. S. Rushmore, Boston.—p. 614.
Mortality and Expectation of Life in Mental Deficiency in Massachusetts: Analysis of Fourteen-Year Period 1917-1930. N. A. Dayton, C. R. Doering, Margaret M. Hilferty, Helen C. Maher and Helen H. Dolan, Boston.—p. 616.
Spontaneous Rupture of Heart: Case Report. F. R. Barnes, Fall River, Mass.—p. 631.
Horseshoe Kidney: Report of Unusual Form. J. Tartakoff, Worcester, Mass.—p. 633.

Craniocerebral Injuries.—Risley discusses the question of the element of danger in doing spinal tap in acute cases of craniocerebral injury, for the emergency within the skull is so great, because of the rapid accumulation of fluid within its closed walls, that permanent cerebral damage is quickly accomplished unless this rapidly accumulating fluid is speedily removed. Edema and hemorrhage, accompanying the more severe grades of brain injury, immediately result in the interference with absorption of cerebrospinal fluid by the normal paths, and a vicious circle is set up, which causes further pressure on the brain and a resulting cerebral anemia. This anemia, if not relieved at once, leads with great rapidity to gliosis and lasting changes in the cerebral tissues, which, in turn, effect permanent changes in the disposition, character and mentality of the patient. Relief of this tension is therefore essential and should be brought about without delay. It is best accomplished by repeated spinal taps. It has further been demonstrated that this procedure, if carried out as a routine, will in the vast majority of cases obviate the necessity of later decompression operations. This measure is especially applicable to cases of fracture of the base of the skull. The picture in the more severe types of fractured base is rarely clean cut, and, unless one is able to get an absolute confirmation by roentgen examination, one is liable to have a confused and ill defined picture presented and can make a diagnosis only by a process of elimination. If, however, one estimates the extent of cerebral damage by a measurement of intracranial pressure, one can obtain a much more clearly defined picture, and the treatment can be worked out much more logically. The author emphasizes the fact that the important consideration, in all types of head injury, is the prevention of cerebral damage. This is to be accomplished by efforts to keep the intracranial pressure as nearly normal as possible.

"Avertin" as Basal Anesthetic.—Marvin believes that "avertin" should be used only as a basal anesthetic. It should be given only by a well trained anesthetist or under his direction. Every detail of technic should be executed accurately. Carelessness will be penalized by morbidity and mortality. It causes a peaceful, quiet and rather rapid induction with early relaxation. The amount of ether or nitrous oxide used as an adjunct is greatly reduced. It should be used alone, and not in combination with other drugs whose synergistic action might produce serious complications.

Ohio State Medical Journal, Columbus

28: 233-312 (April) 1932

Premature Infants: Report of Eleven Hundred and Twelve Consecutive Cases. J. H. Hess and Evelyn C. Lundeen, Chicago.—p. 253.
Extrasystoles and Their Treatment with Quinidine Sulphate. J. McGuire, Cincinnati.—p. 260.
General Medical Aspects of Endocrinology, with Remarks Concerning Some of the Newer Hormones. E. P. McCullagh, Cleveland.—p. 263.
Whooping Cough: Pertussis. F. van Orsdall, Columbus.—p. 268.
Clinical Examination of Autonomic Nervous System. A. T. Steegmann, Cleveland.—p. 272.
*Focal Infection as Factor in Heart Disease. R. L. Haden, Cleveland. —p. 276.

Focal Infection as Factor in Heart Disease.—In studying some problems in dental focal infection, Haden injected 1,500 rabbits intravenously with bacteria from periapical infection. The organisms were principally nonhemolytic streptococci. Each animal received 5 cc. of a twenty-four-hour broth culture and was examined post mortem in from three to six days. The organisms were grown under partial oxygen tension, a point most important in preserving pathogenicity during the period intervening between removal of the bacteria from the body and their injection into the experimental animal. All gross lesions observed at the routine necropsy were tabulated. In this series, 18 per cent showed gross endocardial lesions and 10 per cent showed lesions in the myocardium. The lesions recorded are only those which were visible to the naked eye. If microscopic studies had been made, the incidence of lesions in the myocardium would certainly have been much higher. The myocardial lesions observed were hemorrhage, sometimes limited to the right auricle, areas of necrosis of the heart muscle, and occasionally small abscesses. It seems apparent from such results that the organisms in chronic septic foci are well able to produce disease of the myocardium and heart valves. The important lesson to be learned from a study such as this is the realization on the part of the clinician of the potential danger to the heart of chronic septic foci. If this is kept in mind, the importance of removal of focal infec-

tion early instead of late is apparent. There seems to be no doubt that the judicious removal of septic foci will do much to lessen the incidence of heart disease, especially of the myocardium. In patients in whom the heart valves are already damaged by the rheumatic virus, the removal of foci of infection should lessen also the incidence of subacute bacterial endocarditis. Early removal of chronic foci in all diseases of focal origin cannot be stressed too strongly. Too often the late removal is disappointing and the importance of chronic foci is underestimated because the systemic disease, although of focal origin, is beyond repair. Systemic disease of focal origin should be cured before it develops.

Public Health Reports, Washington, D. C.

47: 651-710 (March 18) 1932

Impinger Dust Sampling Apparatus as Used by United States Public Health Service. L. Greenburg and J. J. Bloomfield.—p. 654.

Southern Medical Journal, Birmingham, Ala.

25: 211-324 (March) 1932

Massive Bone Grafts: Report of Cases. O. L. Miller, Charlotte, N. C. —p. 211.
Plaster Cast, Bone Pin Method in Fractures of Lower Leg. J. W. White, Greenville, S. C.—p. 218.
*Eczema in Infancy and Childhood: Its Relation to Allergy. L. Bivings, Atlanta, Ga.—p. 223.
*Herpetic Fever with Stomatitis: Report and Discussion of Case in Which Virus Was Isolated. J. B. Youmans, Nashville, Tenn.—p. 228.
*Solitary Cysts of Kidney. R. W. McKay, Charlotte, N. C.—p. 234.
Oleothorax: Its Use in Chronic Noninfectious Pleural Effusion: Report of Two Cases. W. Baumgarten and H. A. Rusk, St. Louis.—p. 239.
Factors Concerned in Prognosis of Pulmonary Tuberculosis. P. H. Ringer, Asheville, N. C.—p. 243.
Rôle of Roentgen Ray in Determining Cause of Gastro-Intestinal Bleeding. E. M. McPeak, Washington, D. C.—p. 247.
Management of Toxic Goiters. A. G. Brenizer, Charlotte, N. C.—p. 251.
*End-Results of Treatment for Peptic Ulcer. W. G. Morgan, Washington, D. C.—p. 256.
Etiology and Treatment of Functional Uterine Bleeding. E. Novak, Baltimore.—p. 261.
Mental Reactions Associated with Menopause. Eleanora B. Saunders, Towson, Md.—p. 266.
Use of Thymophysin and Similar Substances in Labor. R. Paddock, St. Louis.—p. 271.
Advantages of Spinal Anesthesia. C. C. Green, Houston, Texas.—p. 274.
Treatment of Some of the Commoner Lid Conditions. O. Wilkinson, Washington, D. C.—p. 277.
Parinaud's Conjunctivitis. A. G. Wilde, Jackson, Miss.—p. 282.
Significance of Hematuria. J. Hume, New Orleans.—p. 288.
Morphologic Effects of Obstructive Jaundice on Liver of Dog. J. L. Brakefield, Birmingham, Ala.—p. 289.
History of Yellow Fever Since the New Orleans Epidemic of 1905. W. A. Sawyer, New York.—p. 291.
Acute Intestinal Diseases in Infants. W. H. F. Warthen, Baltimore. —p. 297.
Earliest American Casualties in World War. R. U. Patterson, Washington, D. C.—p. 305.
The Teaching of Pharmacology. W. D. MacNider, Chapel Hill, N. C. —p. 309.
Undergraduate Medical Teaching and Radiology. V. W. Archer, University, Va.—p. 313.

Eczema in Infancy and Childhood.—According to Bivings, most infantile eczemas are allergic in origin. Prompt and lasting relief can usually be obtained by thorough testing and the elimination of offending foods. The phenomenon of immunity will result in recovery, without treatment, in the mild cases and in the more severe also, but a long period of suffering can be eliminated if the cause is determined and removed. Cow's milk, eggs and wheat are the most common offenders, but many errors and failures will result if they are the only factors considered. Local treatment, combined with testing and elimination, is probably the method to be recommended.

Herpetic Fever with Stomatitis.—Youmans reports a case of idiopathic herpetic fever with stomatitis, in which the virus was isolated from lesions of the mouth. Attempts to isolate the virus from the blood and spinal fluid failed. The author discusses the significance of the clinical features and laboratory studies with respect to the pathogenesis of herpetic fever.

Solitary Cysts of Kidney.—McKay believes that Hepler's explanation that solitary cysts of the kidney are the results of urinary obstruction to part of the kidney parenchyma plus interference with the blood supply is the most logical theory that has been advanced. A plain roentgenogram with the colon cleared of gas will usually show the outline of the cyst. Pyelograms may vary. They are usually confused with renal neoplasms. All solitary cysts of the kidney should be operated on. The serous cysts should be resected when sufficient renal parenchyma remains. In all solitary cysts of the kidney that are hemorrhagic, however, a nephrectomy should be done.

End-Results of Treatment for Peptic Ulcer.—Contrary to the practice of many clinicians, Morgan does not employ alkalis to any great extent in the treatment of peptic ulcer, using only magnesium oxide. Early in his practice he formed the opinion that soda in any form administered in peptic ulcer cases not only did little good but often seemed to retard healing. This experience gained in the early years of his practice has become a settled conviction after years of extensive experience with this type of digestive disorder. From his own experience of thirty-five years in dealing with peptic ulcer, and from an exhaustive study of the literature bearing on this subject, he is convinced that individuals who have been cured of the subjective and objective symptoms of peptic ulcer, and have been free from symptoms for a period of five years, have not only as favorable a life expectancy, but are as comprehensively unimpaired for the carrying on of their accustomed vocation, as any similar group who have suffered any other serious illness.

Southwestern Medicine, Phoenix, Ariz.

14: 101-148 (March) 1932

Do Operative Mortality and Sequelae Justify Operations on Borderland Gallbladder Cases? W. L. Brown, C. P. Brown and J. L. Murphy, El Paso, Texas.—p. 101.
Fungus Infection, with Especial Reference to Lungs. W. W. Watkins, Phoenix, Ariz.—p. 103.
Extrapleural Pneumolysis: Preliminary Report of Cases. V. Randolph, Phoenix, Ariz.—p. 107.
Current Medical Problems of Central America, with Especial Reference to Treatment of Amebiasis. H. H. Anderson, San Francisco.—p. 110.
Climatic Factors of Salt River Valley as Therapeutic Aids. O. H. Brown, Phoenix, Ariz.—p. 113.
Acute Benign Lymphadenosis: Infectious Mononucleosis, Glandular Fever: Case. P. H. Guttman and L. B. Baldwin, Phoenix, Ariz. —p. 115.
Surgical Treatment of Peptic Ulcer. V. C. Hunt, Los Angeles.—p. 118.
Analytic Work Essential to Rational Sewage Disposal Plant Design and Operation. F. M. Veatch, Kansas City, Mo.—p. 122.

Western J. Surg., Obst. & Gynecology, Portland, Ore.

40: 161-224 (April) 1932

*Effect of Distention of Bowel on Its Circulation and on Absorption from Its Lumen. W. D. Gatch, J. E. Owen and H. M. Trusler, Indianapolis.—p. 161.
Study of Abdominal Adhesions. Rea Smith, Los Angeles.—p. 171.
Appendicitis Statistics. C. E. Black, Jacksonville, Ill.—p. 176.
Discussion of Appendicitis Based on Thirteen Hundred Consecutive Appendectomies. F. R. Fairchild, Woodland, Calif.—p. 188.
Appendicitis: When to and When Not to Operate. P. W. Willis, Seattle.—p. 195.
*Statistical Study of Acute Appendicitis. L. W. Jordan, Portland, Ore. —p. 201.

Bowel Distention.—Gatch and his associates describe experiments which indicate that the factors which govern the absorption of the toxic material from the intestine are more important than those which govern its formation. They favor the opinion that this absorption is mostly transperitoneal and that the peritoneum has considerable ability to hinder it. They lend support to the view that the best treatment of advanced ileus is simple relief of obstruction. The ability of seminecrotic bowel to recover is phenomenal. The authors' experiments show that a rapid drop in blood pressure is the most constant indication that absorption of toxic material has occurred. They believe that this makes spinal anesthesia dangerous.

Statistical Study of Acute Appendicitis.—Jordan studied a series of 587 cases of acute appendicitis. Of this number, 30, or 5.11 per cent, ended fatally. Only those surgical cases were considered in which there was a pathologic diagnosis of acute appendicitis. During the acute attack, previous to their entrance to the hospitals, many of the patients had had laxatives and enemas. In this series of cases, the average clinical picture of acute appendicitis was determined. In comparing the nonfatal cases with the fatal cases, the differences between the symptoms, physical signs and laboratory observations in the two groups were not great enough to be of much practical significance in determining the prognosis. Delay in surgical treatment was found to increase the death rate, which was 5.11 per cent.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Physical Medicine, London

6: 243-262 (March) 1932

*Diathermy of Brain. J. Kowarschik.—p. 245.
Movement in Organic Disease. E. Kingscote.—p. 248.
*Elimination of Uric Acid Through Skin Following Mud Packs. M. Comel.—p. 250.
Types of Arthritis Amenable to Treatment of Pelvic Organs by Diathermy and Ionization. C. A. Robinson.—p. 251.
Spas and Spa Treatment in Europe. M. B. Ray.—p. 253.

Diathermy of Brain.—Kowarschik states that there are two ways of diathermizing the brain. The first is the transverse method. Here one uses two small lead electrodes (5 by 5 cm.) placed on both temples, and fastened with a bandage. The second method is by sending the current through the head in a sagittal direction. One electrode (4 by 12 cm.) is placed on the forehead, above the eyebrows; the other (of the same size) on the back of the head, at the hair border, or even on the hair, if this is well wetted with soap and water. The sagittal diathermizing of the brain will warm up the frontal lobes, the midbrain, the pons, the medulla oblongata and the cerebellum. With both methods the current should be strong enough to produce only a mild and agreeable feeling of warmth; in most cases from 0.2 to 0.3 ampere will suffice. Stronger currents will sometimes cause dizziness or headaches. To avoid dizziness, it is best to have the patient recumbent during the treatment, which should not be longer than about fifteen or twenty minutes—though some recommend as long as an hour. By the use of either method one can diathermize the brain, producing a hyperemia and so improving the functions of the brain centers. These respond frequently to diathermy. One notes a decrease of blood pressure in cases of hypertonia, a regaining of consciousness with uremia, an increase of urine in many persons, an increase of basal metabolism, and an effect on the activity of the generative glands. The author believes that in the past these many effects of cerebral diathermy have been used far too little in therapeutics and strongly recommends their more frequent use—the more so since diathermy is entirely free from danger.

Elimination of Uric Acid.—Comel states that, following thermal mud-packs, great amounts of uric acid are excreted through the skin. A drainage of uric acid from tissues admittedly occurs, as the elimination of uric acid is very high even with a purine-free diet, and is particularly high in persons with gout and those showing hyperuricemic arthritis.

British Journal of Radiology, London

5: 193-288 (March) 1932

*Discussion on Lipiodol in Diagnosis of Intrathoracic Disease. L. S. T. Burrell.—p. 193.
*Discussion on Radiation Treatment of Leukemia. T. Horder.—p. 202.
Discussion on International Protection Recommendations. F. Roberts.—p. 215.
Congenital Diseases of Lungs. P. Kerley.—p. 234.
Radiology of Gallstones and Gallbladder. G. E. Vilvandre.—p. 241.
Hypertrophy of Both Breasts Treated by Roentgen Rays. A. H. Laird.—p. 249.
Variation of Total Roentgen-Ray Energy with Potentials. W. Moppett.—p. 250.
Advances in Roentgen-Ray Engineering, with Especial Reference to High Potentials. G. Grossmann.—p. 252.
Experimental Radiography Utilizing Gamma Rays of Radium. C. G. Osment.—p. 269.
Power Factor in Radiography. W. E. Schall.—p. 275.
Roentgen-Ray and Radium Therapy. T. Horder.—p. 278.

Iodized Poppy-Seed Oil in Diagnosis of Intrathoracic Disease.—Burrell reviews the various methods of administering iodized poppy-seed oil 40 per cent. There are disadvantages in the cricothyroid method. If it is not given properly, the material, instead of being injected into the trachea, goes into the surrounding tissues and may lead to cellulitis and a considerable amount of pain, if not actual danger. Introduction by the nasal route is simple, but there is a possibility of laryngeal spasm. The usual method of introduction at present is through the cords with a laryngeal syringe. The most obvious indication for the use of the oil is bronchiectasis, in which condition it is a guide to treatment, which depends largely on whether the disease is unilateral or bilateral. The author has frequently had a patient with obvious signs of bronchiectasis in one lung, and only by the use of the oil has he discovered that there was considerable bronchiectatic dilatation on the other side. Before urging a surgical operation of any magnitude, therefore, it is essential to have a roentgen examination after using the oil. Again, it is difficult or impossible to determine clinically the extent of the bronchiectasis, and treatment depends largely on extent. If bronchiectasis is confined to the extreme lower lobe of the lung, it is possible to have that lobe excised. The author has been most impressed by the results of operation. It was not until iodized poppy-seed oil 40 per cent was introduced that one recognized that a certain proportion of cases of unexplained hemoptysis were really bronchiectasis. Formerly such patients would be sent to a sanatorium, but now it is possible to clinch the diagnosis in many cases. Every case of unexplained hemoptysis should be examined by roentgen rays after injection of the oil.

Radiation Treatment of Leukemia.—Horder reports that roentgen rays applied to the left upper abdomen have great value in both myelocytic and lymphatic leukemia. They probably prolong life in most cases and they certainly make the patient much more comfortable. Radiations must be used carefully, but in sufficient doses. The tendency at present is to underdose. On the other hand, great care must be exercised at the beginning of the treatment. The state of the red cells and hemoglobin must be taken into account in controlling dosage. They have, in fact, even greater importance than the white cells.

British Medical Journal, London

1: 457-506 (March 12) 1932

Recent Work on Afferent Control of Circulation in Health and Disease. S. Wright.—p. 457.
Flatfoot. M. Forrester-Brown.—p. 463.
*Blood Sedimentation Rate in Pulmonary Tuberculosis: Its Value in Management of Patient. H. Roche.—p. 466.
Essential Hypertension: Review of One Hundred Cases. R. Marshall.—p. 468.
*Conservative Mastoidectomy for Chronic Suppurative Otitis Media. L. G. Brown.—p. 470.

Blood Sedimentation Rate in Pulmonary Tuberculosis.—Roche considers that the blood sedimentation rate is of proved value in the management of cases of pulmonary tuberculosis. The technic is simple. Readings at the end of the first hour are usually sufficient. Regular and repeated estimations are essential. The author strongly urges that the information provided by such estimations should be carefully considered when prescribing rest and exercise, particularly in patients whose temperatures and pulse rates are within normal limits. It is his opinion that attention to this point will tend to minimize the risk of relapse.

Conservative Mastoidectomy for Chronic Suppurative Otitis Media.—Brown calls attention to the fact that chronic suppurative otitis media (in reality, chronic mastoid disease) still remains far too prevalent in spite of its admitted dangers to the patient and the loss of national efficiency due to deafness. Conservative mastoidectomy, though devised and advocated as long ago as 1907 by Charles Heath, has not yet gained the universal support it deserves. The author advocates a modification of Heath's operation, termed "transantral attico-tympanotomy," and describes the results he obtained in a series of cases.

Glasgow Medical Journal

36: 113-168 (March) 1932

*Convulsions in Infancy: Part I. S. Graham.—p. 113.
Id.: Part II. N. Morris.—p. 126.
*Id.: Part III. J. B. Rennie.—p. 133.

Convulsions in Infancy.—Graham stresses the great value of chloral hydrate in convulsions in infancy (2 to 4 grains, or 0.013 to 0.026 Gm.) by mouth, or, if the patient is unable to swallow, 5 grains (0.03 Gm.) dissolved in a little water and given by rectum. The action is rapid and very effective and obviously more lasting than chloroform. Indeed, in the idiopathic type of convulsion, chloral hydrate given in this way and repeated every two hours if necessary (1 grain, or 0.0065 Gm.) to an infant 1 month of age is a most satisfactory form of treatment. The chloral hydrate should not be stopped when the convulsions cease, but the dose must be reduced gradually and the interval lengthened until the daily amount given is very small. This

gradual reduction of the chloral over a period of several days is most important. Having controlled the attack, it is necessary for rational treatment to ascertain if possible the cause. Fever is usually present, not as effect but as cause, and usually indicates some infection. The discovery of an early bronchopneumonia or an otitis media, for example, renders the most probable cause of the convulsion tetany. The facial phenomenon will be absent after the convulsion, and probably none of the other signs of tetany will be present, but this does not invalidate such a diagnosis of tetany. The most difficult task is the decision regarding the presence or absence of disease of the nervous system, especially meningitis. A bulging fontanel always demands a lumbar puncture as a therapeutic as well as a diagnostic measure, although the results of lumbar puncture as a means of controlling the attacks are particularly disappointing. If a diagnosis of tetany has been arrived at, treatment with calcium chloride and cod liver oil (or one of its substitutes) should be instituted. Terminal convulsions, such as occur so commonly in tuberculous meningitis and less commonly in pneumonias and other similar infections, are best combated by chloral hydrate. Morphine may be used, but it is less safe and less efficient, while the bromides are perfectly safe but still not as efficient. Generally speaking, in all cases the bowels should be attended to. The dose of castor oil, or, if in a hospital, the rectal wash-out, will be helpful in any event at the onset of an infection, but when this has been done properly it is not necessary and may be distinctly harmful to repeat the procedure. The continued use of such drugs as mercury with chalk under these circumstances is unwarranted.

Blood Changes in Convulsions in Infancy.—According to Rennie, the total serum calcium and diffusible calcium are reduced not only in cases with clinical signs of tetany but in many cases of convulsions with no other evidence of tetany. The serum protein influences only the protein-bound calcium, which is inert as regards neuromuscular excitability. The injection of amino-acids intravenously in animals causes a definite fall in the serum calcium. From these results it seems fair to conclude that the products of protein decomposition, certainly those in the form of amino-acids, can combine with calcium, remove it from the serum, and thus induce hypocalcemia. It may be, therefore, that the presence of excess amino-acids in many conditions causes low serum calcium and convulsions.

Guy's Hospital Gazette, London

46: 97-114 (March 19) 1932

Cerebrospinal Meningitis. A. C. Hampson.—p. 98.
Cleft Palate. J. B. Hunter.—p. 102.

Indian Medical Gazette, Calcutta

67: 121-180 (March) 1932

Intradermal Method of Injecting Hydnocarpus Preparations in Leprosy. E. Muir.—p. 121.
"Mercurochrome-220 Soluble" in Leprosy Work. G. R. Rao and A. T. Roy.—p. 124.
Preliminary Note on Action of Alkaloid of Moringa Pterygosperma (N. O. Moringae). R. N. Chopra and P. De.—p. 128.
Cytologic Studies of Blood and Tissues in Kala-Azar and Associated Conditions: II. Morphology of Leukocytes in Supravital Preparations. K. V. Krishnan, J. C. Lal and L. E. Napier.—p. 130.
Id.: III. Large Mononuclear Cells in Human Malaria. L. E. Napier, K. V. Krishnan and J. C. Lal.—p. 135.
Isohemagglutination. P. N. Mitra.—p. 139.
Calcium Content of Common Dietaries in India. D. R. N. Sahu and A. N. Bose.—p. 140.

Journal of Mental Science, London

78: 1-262 (Jan.) 1932

Pathogenesis of Anaerobic Microbic Infections in Major and Minor Psychoses, with Control Cases. W. M. Ford-Robertson.—p. 12.
*Serodiagnosis of Syphilis in Mental Hospital Practice. J. E. Nicole and E. J. Fitzgerald.—p. 96.
Some Aspects of Leukocyte Associated with Mental Disorder. G. W. T. H. Fleming.—p. 129.
*Alleged Hemoclasia in Insane: Study of Fifty Cases, with Especial Reference to Technic. T. D. Power and A. W. Pettit.—p. 147.
*Experimental Error in Enumeration of Leukocytes and Its Application to Hemoclastic Crisis. Irene Yates and J. C. Batt.—p. 160.

Syphilis in Mental Hospital Practice.—Nicole and Fitzgerald did the micro-Meinicke clarification reaction in 1,350 mental cases, 175 of these being selected for comparison with other tests, these others being the macro-Meinicke clarification reaction, the original Sachs-Georgi test, the Sachs-Witebsky test and the Wassermann test, performed on an average five at a time on each serum. Cerebrospinal fluid was tested in 170 of these cases by means of an average of four of these reactions and also by six usual chemical tests. The cases included 53 nonsyphilitic persons, 38 syphilitic persons (without dementia paralytica), of which 17 had been treated, 26 dementia paralytica patients before treatment and 58 after malaria. Disagreements between these tests occurred (in blood) in 36 cases, of which 4 were nonsyphilitic, 5 untreated syphilitic persons, and 27 treated (including dementia paralytica). Noteworthy points were: 1. The micro-Meinicke clarification reaction and the macro-Meinicke clarification reaction were only once wrongly negative. 2. The Sachs-Witebsky was never wrongly positive, and was more sensitive than the original Sachs-Georgi, but not more sensitive than the Wassermann. 3. The Meinicke clarification reactions were superior to all others in sensitivity. A routine procedure is suggested, consisting of applying a micro-Meinicke clarification reaction to all patients on admission, and testing the ones giving a positive reaction by means of a macro-Meinicke clarification reaction. By this means a correct diagnosis is likely to be arrived at in at least 99.7 per cent of the cases. The procedure for cerebrospinal fluid consists of testing all fluids by means of a macro-Meinicke clarification reaction, and checking the negatives by a Sachs-Witebsky. The likely errors would probably number only 2 per cent.

Alleged Hemoclasia in Insane.—Power and Pettit failed throughout their investigations to find any reasonable grounds for concluding that, among the insane, there occurs either a digestion leukocytosis or a digestion leukopenia. Variations in a succession of blood counts developed in a large number of patients, whether the latter had been given milk or were fasting, and there was no definite evidence that the taking of food had any effect whatever on the leukocytic curve. It is just possible that the hourly and daily rhythm of the leukocytes, described by Sabin and Shaw, may not be exactly the same in the mentally deranged as among normal individuals; but this must be a matter for future research and has nothing to do with the subject of hemoclasia.

Error in Enumeration of Leukocytes.—Yates and Batt show that certain errors are inevitable when leukocytes are enumerated, and demonstrate that results from such enumerations must be interpreted with mathematical considerations. In the past the mathematical applications have been ignored to a large extent, and only the actual experimental figures considered. The authors endeavor to correlate the two, and refer to fallacies that may be present when conclusions from such results are under consideration. Thirty-six cases investigated for hemoclastic crises gave results within the experimental error. A review of the literature on hemoclastic crises shows that many authors underestimate the error of counting.

Journal of Tropical Medicine and Hygiene, London

35: 81-96 (March 15) 1932

Bacillus Fermenting with Production of Gas Rhamnose but no Other Carbohydrate, Alcohol or Hydro-Aromatic Compound, Among Series of Twenty-Eight Such Substances Tried: Use of Bacillus in Detection and Identification of Rhamnose. A. Castellani.—p. 81.
Parasites and Their Environment. F. G. Cawston.—p. 85.
Etiology of "Egyptian Splenomegaly." R. Girges.—p. 86.

Lancet, London

1: 653-708 (March 26) 1932

*Pathology and Treatment of Anemia. L. J. Witts.—p. 653.
Treatment of Clonic Facial Spasm by Alcohol Injection and by Nerve Anastomosis. W. Harris and A. D. Wright.—p. 657.
*Occurrence of Pituitary Hormones in Urine in Conditions Unassociated with Pregnancy. T. N. A. Jeffcoate.—p. 662.
Operation Under Local Anesthesia: Preparation and Care of Patient. W. Moffatt.—p. 666.

Pathology and Treatment of Anemia.—Witts presents data on the basis of which he separates the hemolytic anemias from pernicious and allied anemias, and subdivides the hemolytic anemias into acute and chronic forms. Acute hemolytic anemia and the hemolytic anemia of pregnancy differ from pernicious and allied anemias in the absence of any nutritional or digestive defect, in the fever and general constitutional disturbance, in the regenerative character of the anemia with reticulocytosis and leukocytosis, in the fluctuations in the resistance of the red cells, and in the self-limited course. They differ from chronic

hemolytic anemia in clinical features, natural history, and response to treatment. They may be so acute that hemoglobinuria develops, or they may be subacute and torpid; but death or spontaneous recovery occurs within a period rarely longer than a year. On the other hand, one must be impressed by the close resemblance of acute hemolytic anemia and the hemolytic anemia of pregnancy. Every feature of the one disease is duplicated in the other, and they differ only in the fact of pregnancy. For the peculiar frequency of a disease in youth and in pregnancy, one has a parallel in acute yellow atrophy of the liver. For the initiation or recrudescence of an anemia in pregnancy there is a parallel in the bartonella anemia of experimental animals, which may develop only under special conditions, such as after splenectomy or after artificial hemolysis, though the micro-organisms were previously present in the host. There is no valid reason in pathology for the separation of acute hemolytic anemia and the hemolytic anemia of pregnancy, and every symptom points to their identity.

Pituitary Hormones in Urine Apart from Pregnancy.—Jeffcoate gives experimental results confirming the work of other observers who have stated that prolan A can be found in the urine at the menopause after castration and in some cases of malignant disease. In a series of cases studied by the author, prolan B was never excreted in the urine except when the patient had living chorionic elements present in the body. In other words, a positive Aschheim-Zondek reaction never obtained except in the presence of such elements. It is shown that prolan A can be detected in the urine of rabbits after castration. Prolan A was found also in the urine of patients who had had subtotal thyroidectomy performed for exophthalmic goiter. The finding of prolan A in the urine of patients with malignant disease was almost entirely confined to those cases in which the genital tract was the site of the tumor.

Medical Journal of Australia, Sydney

1: 283-314 (Feb. 27) 1932

*Cardiac Arrhythmias. E. Murphy.—p. 283.
*Relation of Sluder's Neuralgia to Trigeminal Nerve and to Other Facial Neuralgias. L. B. Cox.—p. 292.
John Abernethy, 1764-1831. H. R. G. Poate.—p. 298.
Fable of Loaded Cecum. H. C. Trumble.—p. 301.

Cardiac Arrhythmias.—Murphy enumerates the causes of heart block as follows: (1) Acute infections, such as rheumatism, diphtheria and pneumonia; (2) chronic infections, such as syphilis; (3) degenerative changes—coronary sclerosis or fibrous myocarditis; (4) new growths or hydatid cysts—situated in the bundle of His, and (5) digitalis in large doses. The important features in heart block are the condition of the heart muscle generally; in acute infections, mild heart block may be the only sign of some myocardial damage. The occurrence of syncopal or epileptiform attacks may lead to difficulty. They are distinguished from true epilepsy, because there is no aura—the attack comes on quite suddenly without warning, and it is associated with a very slow pulse. The convulsion and loss of consciousness are due to the cerebral anemia produced during the period of complete block, before the ventricle takes on its own rhythm. It is not uncommonly fatal. Patients who suffer in this way should be warned against going out alone, and they should not expose themselves to any risk of falling down in the traffic. With the less severe forms of heart block, a fairly active life may be led for an indefinite period. A 1:1,000 solution of epinephrine in doses of from 0.3 to 0.6 cc. (5 to 10 minims) in the attack is frequently successful. Digitalis may be given in complete block and congestive failure. Atropine, 0.4 to 0.6 mg. (1/150 to 1/100 grain), will act in those cases associated with vagal irritation. Barium chloride, 0.12 Gm. (2 grains), has been advocated. When some systemic disease such as syphilis is present, antisyphilitic treatment must be undertaken. Mercury in these cases appears to be safer than the arsenic preparations, and many patients are completely cured.

Relation of Sluder's Neuralgia to Trigeminal Nerve.—Cox describes section of the sensory root of the trigeminal nerve in a patient with a Sluder's neuralgia following an empyema of one sphenoidal sinus. The operation was done in three stages, but no effect was produced until the conjunctiva became hypesthetic. It is suggested that the condition is a neuralgia of the nasociliary nerve of infective origin. The author discusses atypical facial neuralgias and their relation to Sluder's neuralgia, and to the anatomy of the facial region.

Practitioner, London

128: 209-368 (March) 1932

Significance and Pathogenesis of Certain Dermatoses. H. W. Barber.—p. 209.
Pruritus. E. Graham-Little.—p. 224.
Roentgen-Ray Treatment of Skin Diseases. A. M. H. Gray.—p. 232.
Radon in Dermatology. A. C. Roxburgh.—p. 242.
Some Uses of Ultraviolet Radiations in Skin Diseases. R. Aitken.—p. 252.
Errors and Accidents of Treatment. H. C. Semon.—p. 262.
Skin Diseases in General Practice. R. Gibson.—p. 271.
Urticaria. W. N. Goldsmith.—p. 281.
Some Recent Work on Psoriasis. H. Haldin-Davis.—p. 290.
Eczema. G. B. Dowling.—p. 299.
Ringworm of Scalp. W. J. O'Donovan.—p. 315.
Seborrhea. F. Gardiner.—p. 322.
Diet as Factor in Etiology of Acne Vulgaris. W. K. Wills.—p. 331.
Impetigo. J. G. Tomkinson.—p. 334.
Modern Treatment of Lupus Vulgaris. J. Beatty.—p. 343.
Carcinoma of Skin: Its Treatment by Radium. R. Ward.—p. 351.

Tubercle, London

13: 241-288 (March) 1932

Observations on Tuberculocutaneous Reactions and Tuberculosis. F. J. Allen.—p. 241.
Antituberculosis Work in Czechoslovakia. Eva Morton.—p. 255.
Duty of State Toward Sufferer from Chronic Pulmonary Tuberculosis. Jane Walker.—p. 259.
Id: F. J. Bentley.—p. 260.

Bulletins et Mém. de la Soc. Nat. de Chirurgie, Paris

58: 439-495 (March 19) 1932

Action and Use of Electric Bistoury in Treatment of Cancer. Heitz-Boyer.—p. 449.
Cinematizations with Straps in Paralysis of Limbs. A. Pellegrini.—p. 468.
Embolism of Superior Mesenteric Artery with Necrosis, Ulcers and Perforation of Intestinal Wall. P. A. Petridis.—p. 472.
Immediate and Early Diagnosis of Carcinomas of Testis. M. Chevassu.—p. 475.
Bacteriotherapy in Surgical Tuberculosis. L. Bazy.—p. 485.
*Severe Staphylococcus Septicemia Cured by Intravenous Injection of Bacteriophage. Brulé and Sauvé.—p. 491.

Case of Septicemia Cured by Injection of Bacteriophage.—Brulé and Sauvé's patient consulted them because of furunculosis. A large abscess was cured by them with local bacteriophage treatment. He returned three months later in a serious condition; a diagnosis of septicemia was made, confirmed by a positive blood culture (Staphylococcus aureus). The symptoms of septicemia had set in eight days following a large injection of vaccine. Finding no general improvement after surgical intervention in the femoral osteomyelitis, the authors gave an injection of bacteriophage in a peptone-free medium, following a blood transfusion. This was followed two days later by an autohemotherapy of 20 cc., after which the temperature dropped, the blood cultures remained negative and a great improvement in the general condition of the patient, leading finally to cure, resulted. Reviewing the case, the authors point out the danger of transforming a latent infection into a generalized septicemia by the injection of a large quantity of vaccine and that the way to obtain a substantial production of antibodies is by progressive and methodical vaccination. Discussing the parts played by the bacteriophage and the autohemotherapy in effecting the cure, the authors suggest that the autohemotherapy destroyed the antiphages, thereby permitting the exclusive action of the bacteriophage.

Schweizerische medizinische Wochenschrift, Basel

62: 297-320 (March 26) 1932

Occurrence of Pellagroid Diseases in Alcoholic Addicts and in Patients with Mental Defects. B. Slotopolsky.—p. 297.
*Clinical Significance of Pericancerous Inflammation and Possibilities of Counteracting It. A. Neumann.—p. 301.
Relations Between Pharmacologic Action and Optic Rotation of Substances. L. Rosenthaler.—p. 305.
*Magnesium Sulphate in Treatment of Tetanus. M. Saegesser.—p. 306.

Pericancerous Inflammation.—Neumann shows that pericancerous inflammation, which is well known in pathology, has been largely disregarded in the clinic and in practice. He recommends that it be given careful attention, for it is often possible to influence the carcinoma favorably, particularly in

inoperable and ray refractory cases. The treatment of the pericancerous inflammation may be general and passive as well as active. In discussing the general treatment, the author emphasizes the necessity of careful handling in manual and in instrumental examinations, and advises that they should be avoided as much as possible. He also points to the dangers of exploratory excisions. For active therapy the author recommends medicinal antiinflammatory treatment, and for this purpose he considers guaiacol valerianate especially valuable, as it inhibits inflammations in general and also has antispasmodic effects. However, in case of hemorrhage of the mucous membrane of the gastro-intestinal tract, guaiacol valerianate is contraindicated. But, in the majority of cases, small doses are helpful. The author's main object was to show that in the cancer treatment of today one considers almost exclusively the tumor as such and neglects to consider and treat properly the pericancerous inflammation. He is convinced that the proper treatment of the latter could reduce the painfulness, especially in inoperable cases, and in some instances might even arrest the further growth.

Magnesium Sulphate in Treatment of Tetanus.—Saegesser points out that, as serotherapy has gained in significance in the treatment of tetanus, magnesium therapy has been largely disregarded. Accordingly he investigated whether serotherapy makes magnesium treatment superfluous. He made experiments on rats and found that after tetanus has become manifest it can be influenced neither by subcutaneous nor by intramuscular injection of magnesium sulphate, for the animals treated thus died at the same time as the control animals. The simultaneous injection of magnesium sulphate and tetanus toxin retards neither the outbreak of the tetanus nor the death of the animals. A preliminary injection of magnesium sulphate farther proximal from the site of the toxin injection retards the tetanus and makes the course more mild, so that the animals survive the tetanus. If instead of magnesium sulphate the same amount of physiologic solution of sodium chloride is injected into the tail, the course of the disease is the same in the animals that have received the injection as in the controls; that is, they die within the first ten hours. From these experiments the author concludes that in animals the perineural and intralumbar injection of magnesium sulphate blocks the central nervous system against the tetanus toxin. In the test tube it could be observed that toxin which has been absorbed by the cerebral substance can be liberated by the addition of magnesium sulphate. The author considers the perineural and intralumbar injection of magnesium sulphate in combination with the intravenous injection of large doses of serum a promising therapeutic method for human tetanus.

Boll. d. Soc. Medico-Chirurgica di Modena

31: 1-116, 1931

Paralysis of Left Recurrent Nerve in Mitral Lesion. G. Nannini.—p. 3.
*Plastic Operation Using Gracilis Muscle in Recurrent Subumbilical Hernia After Laparatomy. A. Comolli.—p. 11.
Sulci and Convolutions of Orbital Aspect of Frontal Lobe in Criminals. L. Rubbiani.—p. 19.
Cancer and Mucocele of Appendix. U. Fogliani.—p. 31.
*Case of Primary Sarcoma of Rectum. M. Montanari Reggiani.—p. 49.
Pathogenesis of Hemorrhagic Infarcts of Intestine. M. Barbiroli.—p. 67.
Case of Sodoku in Province of Reggio Emilia. F. Corfini.—p. 89.
Tonsillectomy and Tonsillotomy. E. Pallestrini.—p. 95.
Clinical and Anatomopathologic Observations on Two Cases of Noma. A. Cavazzuti.—p. 105.

Plastic Operation for Subumbilical Hernia After Laparotomy.—Comolli illustrates and advocates his new method based on a single case in which it was impossible to keep the rectus muscles in place, because of separation and atrophy. The procedure consists in cutting the two gracilis muscles at their distal extremity, leaving the proximal insertion intact, passing them through a subcutaneous tunnel to the lower edge of the abdominal incision, and placing them one beside another over the umbilicopubic line in front of the previously sutured breach between the rectus muscles.

Primary Sarcoma of Rectum.—Montanari Reggiani states that the rectum is seldom the seat of primary tumors of connective tissue origin and that the clinical diagnosis of rectal sarcoma is still difficult. He briefly discusses the existing literature and describes the case history of a patient with fusocellular sarcoma of the rectum and sarcomatous metastases, first of the liver and then of the lungs by the circulatory route.

Rivista d'Ostetricia e Ginecologia Pratica, Milan

14: 47-94 (Feb.) 1932

*Fibromyoma of Uterus: Spontaneous Evacuation. M. Nizza.—p. 51.
Rare Case of Survival of Very Premature Child. C. Cantone.—p. 60.

Fibromyoma of Uterus: Spontaneous Evacuation.—Nizza takes only large fibromyomas into consideration, the smaller ones being more frequent and inconsequential. He finds that they result often from lack of personal hygiene and that profuse menorrhagia is the first symptom. The expulsion of the tumor is conditioned by its growing protrusion inside the uterine cavity, which initiates the necessary mechanisms. The following factors determine expulsion: 1. The increasing growth of the tumor with repulsion of surrounding tissues. 2. The pressure exerted by surrounding fibromatous nodules. 3. Contraction of the uterus, as in the pains of parturition. Parturition favorably influences spontaneous expulsion. The uterine contractions mobilize the tumor, facilitating its passage through the genital tract, and even beyond any resistance offered by the pedicle. Laceration of the pedicle is the final consequence of the parturition. Uterine inversion indicates that the tumoral insertion is located at the lower part of the uterus and is favored by sessile fibromyomas or by short and excessively resistant pedicles with flaccidity of the uterine tissue. The adhesion of the fibromyomas to the wall of the vagina is due to prolonged contact and deprivation of the epithelium occasioned by circulatory disturbance and pressure.

Archiv für Gynäkologie, Berlin

148: 541-774 (March 8) 1932

*Various Forms of Ovarian Tumor Known as Type Brenner: Their Differentiation from Granulosa Cell Tumor and Classification with Other Ovarian Tumors. R. Meyer.—p. 541.
*Rare Causes of Severe Obstetric Hemorrhages. H. Naujoks.—p. 597.
Superfetation. V. Föderl.—p. 653.
Lymphocystic Fibroma of Uterus. L. Motiloff.—p. 674.
Oleogranulomas in Walls of Dermoid Cysts. E. Petrowa.—p. 698.
Anatomy of Sex Organs of the New-Born. H. Hartmann.—p. 708.
Histologic Changes in Uterine Tubes in Different Phases of Life and in Case of Ovarian Tumors. K. Tietze.—p. 724.
Postoperative Course in Gynecologic Interventions. W. Fröhlich.—p. 738.

Forms of Ovarian Tumor Known as Type Brenner.—Meyer shows that Brenner's tumor is a macroscopically as well as microscopically well defined type of tumor of the ovary and that it is not related to the granulosa cell tumor, for it has neither a hormonal action on the uterus nor other noticeable functions. Brenner's tumor occurs sometimes in the solid form, but it may also contain cysts. Characteristic for Brenner's tumor are indifferent glycogen-containing cells with carcinoma-like arrangement in epithelial strands without interposition of fibrils in the epithelium. There is a tendency to swelling and to the formation of smaller or larger cavities with colloidal, mucous or mixed contents. Epithelial formations are found arranged in smaller or larger nests in a firm, fibrous connective tissue, which constitutes a large or by far the largest portion of the solid tumor. The epithelial portions of the tumor originate neither in the ovarian parenchyma nor in its preliminary stages (granulosa balls) but in special cells that have no relation to the normal tissue structure of the ovary, but rather are abnormal embeddings. Their development is traced to embryologic conditions. According to their genesis, the author considers Brenner's tumors as belonging to a systematic order together with the majority of the serous cystomas, adenomatous, papillomatous and partially fibromatous cystomas up to the adenofibromas and the mixed serous-mucinous tumors. Brenner's tumor is benign. Relapses and metastases are absent and it is found mostly in the higher age groups.

Rare Causes of Severe Obstetric Hemorrhages.—Naujoks first discusses premature, total detachment of the placenta. He considers the hematomas of the uterine wall as an early developing sequela of a toxicosis, the later and more serious complication of which is the detachment of the placenta. The diagnosis can be based not only on the known symptoms but also on the intra-amniotic hemorrhage, which becomes manifest following rupture of the bag of waters. In regard to the treatment, it is stated that in severe cases a laparotomy is necessary but extirpation of the uterus should be resorted to only in extreme cases. The author further dis-

cusses placenta praevia cervicalis. Its diagnosis can be based on hemorrhages that develop during the early periods of pregnancy and continue for some time. The dangerous aspect of this condition is not the cervical location of the placenta but rather the usually resulting placental adhesions with subsequent atony. Tamponade is not reliable as a treatment in placenta cervicalis, even after the entire placenta has been detached. The author advises particularly against tight tamponade of the cervix. Prompt and radical intervention is here more necessary than in any other obstetric complication. In regard to spontaneous inversion of the puerperal uterus, it is stated that the danger of shock should not be stressed too much and the danger of fatal hemorrhage should not be underestimated. If collapse does not exist, prompt reposition is advisable. An expectant attitude involves the danger of a fatal hemorrhage, and for this reason it is justified only in existing collapse. In the last part of the article the author discusses varicosis and formation of hematomas. He thinks that varicosis genitalis is given too little consideration. It may cause a number of serious complications during and after labor, of which the formation of hematoma is one of the most important. For the deep hematomas the author recommends conservative measures, and the smaller hematomas should if possible not be incised. In the case of larger hematomas, an early incision should be done only if absolutely necessary. A later incision, after several weeks, cannot usually be avoided, since the spontaneous resorption of the blood clots is unfavorable.

Archiv für Verdauungs-Krankheiten, Berlin

51: 145-280 (March) 1932

Agastric Anemia. K. Eimer and H. Preidt.—p. 145.
Pernicious Anemia and Its Treatment with Especial Consideration of Syphilis. C. Traugott.—p. 158.
Sugar Cures in Gastric and Duodenal Ulcers. H. Strauss.—p. 168.
Action of Atropine and of Several Bromides on Gastric Secretion. G. Baltaceanu.—p. 175.
Significance of Sigmoid Colon for Course of Peristalsis in Colon. W. Tönnis.—p. 184.
*Peristalsis Stimulating Substance in Gastric Mucous Membrane. N. Onodera, Y. Nishina, K. Yukawa, S. Kato and S. Emura.—p. 197.
Pathogenesis of Cholecystitis. J. Vilardell.—p. 207.
Types of Gastric Secretion. J. Fleckel.—p. 227.

Peristalsis Stimulating Substance in Gastric Mucous Membrane.—Onodera and his associates found that, by introducing from 40 to 60 cc. of a 20 to 25 per cent solution of magnesium sulphate directly into the duodenum, diarrhea is rarely produced. However, if the same quantity of magnesium sulphate is given by mouth, diarrhea usually results. This observation gave the authors the idea that by contact of the magnesium sulphate solution with the mucous membrane of the mouth, esophagus or stomach a substance develops which stimulates the peristalsis of the digestive canal. Accordingly, with the aid of a concentrated magnesium sulphate solution they made extracts from various portions of the oral, the esophageal, the gastric and the intestinal mucous membranes and also from several organs, and injected these extracts intravenously into animals and then studied the action on the tonus and the contractions of the intestinal wall. It was found that the gastric mucous membrane contains a substance that increases the peristalsis and minute amounts of this substance are also present in the spleen; however, all the other portions of the mucous membrane as well as the other organs that were tested did not contain this substance. The substance is readily dialyzable, boiling for a period of thirty minutes does not destroy it, and it differs somewhat from Zülzer's peristalsis hormone. One of the authors isolated from the magnesium sulphate extract of the gastric mucous membrane a crystalline substance, the aqueous solution of which, when injected intravenously, increases the tonus and the peristalsis of the stomach and of the intestine. The authors also made experiments with amino-acids and a 25 per cent solution of magnesium sulphate and obtained peculiar crystals of double salts, which differ from the crystals of the magnesium sulphate as well as from those of the amino-acids. The intravenous injection of the aqueous solution of these peculiar crystals had a peristaltic effect; especially strong was this effect with the double salts from magnesium sulphate and the aliphatic amino-acids, whereas the double salts of magnesium sulphate with the aromatic amino-acids had only a slight or an entirely negative peristaltic action. The authors conclude that the former assumption that the purgative action of magnesium sulphate is entirely due to its nonresorbability is not quite correct but that a small portion is absorbed, which with the aliphatic amino-acids forms a hormone-like substance with a peristaltic action. The largest portion of the magnesium sulphate, however, is not resorbed but keeps the intestinal contents in a fluid state. Thus the resulting diarrhea is due to two factors; namely, the increased peristalsis and the fluid condition of the intestinal contents.

Beiträge zur Klinik der Tuberkulose, Berlin

79: 257-514 (Feb. 22) 1932

*Pathologic-Anatomic Investigations on Tuberculosis of Bone System. E. Randerath.—p. 257.
Differential Diagnosis of Pulmonary Infiltrations: Early Infiltrates with Especial Consideration of Time of Retrogression. W. Löffler.—p. 338.
Idem: Successive Transient Infiltrates (with Eosinophilia). W. Löffler.—p. 368.
Development and Casuistics of Pulmonary Tuberculosis. W. Pagel.—p. 383.
Studies on Tuberculous Meningitis: Secondary Tuberculosis and Tuberculous Meningitis; Late Secondary Meningitis. D. Orosz.—p. 401.
Idem: Relation Between Early Secondary Meningitis and Pleuritis. D. Orosz.—p. 408.
*Carbon Treatment of Pulmonary Tuberculosis. G. Sommerlad.—p. 414.
Animal Experiments on Nonspecific Therapeutic Modification of Pulmonary Tuberculosis. B. Scharlau.—p. 474.
Prognosis of Pulmonary Tuberculosis in Considerable Unilateral Contraction of Thorax Following Exudative Pleuritis. W. Illig.—p. 478.
Oleothorax Therapy. G. von Haffner.—p. 485.
Simultaneous Continuous Extrafamilial Infection with Tuberculous Meningitis in Two Siblings. W. Pockels.—p. 496.
Concurrence of Acute Miliary Tuberculosis and Acute Myeloblastic Leukemia. H. Lenhartz.—p. 501.
Rudimentary Polyserositis. G. L. Patronikola.—p. 508.

Tuberculosis of Bone System.—In generalized hematogenic miliary tuberculosis, Randerath demonstrated in all carefully examined cases the presence of miliary tubercles in the bone marrow. In this form of tuberculosis the nodules were found mainly in the myeloid portions of the bone system, whereas the pure fat marrow portions contained but few tubercles. In some cases of miliary tuberculosis, tubercles were entirely absent from the fat marrow. This contrast in the density of the tubercles in the myeloid marrow and in the fat marrow was noted in all cases. In examining the bone marrow in chronic, isolated pulmonary tuberculosis the author noted an unusual frequency of miliary tubercles in the bone system. In eighteen out of twenty-two cases, miliary bone marrow tubercles were found. In contradistinction to general miliary tuberculosis, the nodules in this group showed certain peculiarities in regard to their developmental stages. In one group, all tubercles in the bone marrow showed the aspects of "primary tissue impairment," in the sense of more or less advanced circumscribed necroses. In another group, all the tubercles in the bones belonged to the productive stage. And in a third group there were in the bone marrow, similar to conditions found in generalized miliary tuberculosis, all developmental stages of tubercles side by side. In examining cases of chronic isolated tuberculosis of the bone system, the author found sometimes more caseous and then again more granulating productive processes. But a strict differentiation of bone tuberculosis in a caseous and a granulating form, he does not consider justified, since the two stages merge into each other.

Carbon Treatment of Pulmonary Tuberculosis.—Sommerlad shows that of the various forms of nonspecific stimulation therapy for pulmonary tuberculosis the carbon treatment deserves special consideration, not only because it can be employed in a larger number of cases but also because it is less dangerous than is treatment with metal salts. The carbon treatment has the aim to increase the natural defensive action of the reticulo-endothelial system. The suspension that the author employed for intravenous injection is ready prepared in ampules of from 3 to 4 cc. It consists of small carbon particles in an isotonic calcium chloride solution. The injection is made slowly, and care is taken that the carbon particles are evenly distributed in the suspension. From five to ten hours after the injection there is usually an increase in temperature and also headache, weakness, pains in the joints, lack of appetite and in rare instances also chills and nausea. The temperature increase usually recurs on the following day, but

on the third day it has usually reached the former level. With the reduction in temperature the other symptoms likewise disappear, and on the fourth or fifth day the patients usually feel quite well again. For at least three days following the injection, strict rest in bed is required. The author reports his experiences with intravenous carbon injections in fifty-eight patients, most of them with severe pulmonary tuberculosis. In thirty-seven of them a considerable improvement was effected. The number of injections varied in different patients; some received three or four injections, while others received as high as eighteen. The indications for the treatment and the dosage are discussed and it is emphasized that the treatment should be given only in institutions and that it usually requires several months. The influence of the injections on the reticuloendothelial system was carefully controlled by means of the blood pictures. Numerous roentgenograms are shown.

Deutsche medizinische Wochenschrift, Leipzig

58: 359-398 (March 4) 1932. Partial Index

Organization of Crusade Against Cancer in Sweden. G. Forssell.—p. 359.
*Radium Treatment of Malignant Tumors of Oral Cavity. E. Berven.—p. 363.
Experiences with Radiologic Treatment of Genital Carcinoma. J. Heyman.—p. 367.
Special Tasks of Section for Tumor Pathology of the Radiumhemmet. O. Reuterwall.—p. 368.
Sedimentation Speed of Erythrocytes in Acute Diseases of Childhood. H. Plonsker.—p. 370.
Therapy of Pathologic Conditions of Irritation on Male Genitalia. H. Wollstein.—p. 372.
Barium Poisoning. G. Gottwald.—p. 373.
Teaching Staff, Student Body and State Supervision in German Universities. W. Hellpach.—p. 375.

Radium Treatment of Malignant Tumors of Oral Cavity.—Berven emphasizes the better results that have been obtained in recent years with radium treatment of tumors of the oral cavity. He ascribes the more favorable results to the improved technic of recent years. His report covers the years from 1916 to 1926. In the first half of this period, from 1916 to 1921, the treatment was usually begun with roentgen irradiation and was followed by surface contact application of radium tubes. After 1921 the brachyradium therapy in the form of surface contact application or of intratumoral application was gradually discontinued and teleradium treatment (from 5 to 6 cm. distance) was employed. The teleradium treatment was given in such a manner that the cone of rays attacked the tumor from various sides. The author gives tabular reports which show the number of cases of lingual, sublingual, mandibular and buccal carcinomas that were treated during the years from 1916 to 1921, and during the period from 1921 to 1926, and the percentage of cures in each group. In another table the carcinomas are grouped according to stages during which treatment was begun and the result obtained in each stage, and other tables show the results obtained in lympho-epithelioma of the tonsils and in sarcoma of the tonsils. In the conclusion the author points out that because the teleradium therapy requires great experience it should be given only in special clinics.

Jahrbuch für Kinderheilkunde, Berlin

135: 1-128 (March) 1932

*Epituberculous Infiltration of Lung During Childhood. W. Blacher.—p. 1.
*Possibility of Cure of Tuberculous Meningitis by Means of High Voltage Roentgen Irradiation. Z. von Bókay.—p. 69.
Aspects of Pneumococcic Meningitis During Early Childhood. E. Stransky.—p. 82.
Blood-Brain Barrier During Nursling Age. M. Tatsumi.—p. 91.
Facialis Phenomenon (Chvostek's Sign). K. Huldschinsky.—p. 96.
Diphtheritic Polyneuritis. O. Krönig.—p. 113.

Epituberculous Infiltration of Lung During Childhood.—Blacher in his comprehensive study first discusses the various terms that have been applied to the epituberculous infiltration and also the different opinions about its pathogenesis and its significance. His own observations were made on 214 cases of acute tuberculous disease. He found epituberculous infiltration in only 5 per cent of these cases and therefore concludes that it is comparatively rare. He gives ten detailed case reports and on the basis of his observations concludes that epituberculous infiltration is a manifestation of a defense reaction on the part of the pulmonary tissue surrounding the primary focus. The case histories indicate that the age of a child and perhaps also the localization of the tuberculous infiltration are significant for the course of the process. In all younger children, regardless of the localization, and in all infiltrations of the upper lobe, regardless of the age of the child, the healing tendency was retarded. The size and density of the infiltration do not permit an inference as to the size of the tuberculous focus and the type of the tissue reaction. The ready reactivity to tuberculin and other irritants indicates a tuberculous origin of the infiltrate. The pulmonary infiltration was often accompanied by a disease of the pleura. The latter sometimes preceded the infiltration and from this it may be assumed not merely that it is an accompanying manifestation but that it may be a factor in the pathogenesis of the infiltration. Three cases that were kept under careful roentgen control indicate the great significance of the primary focus for the development of the epituberculous infiltration. Of decisive significance for the pathogenesis of the epituberculous infiltration is the connection of two biologic factors, namely, the constitutionally conditioned reactivity of the entire organism referred to as "allergic diathesis" and the sensitization of the pulmonary tissue by the tuberculous infection.

Treatment of Tuberculous Meningitis with High Voltage Roentgen Irradiation.—Von Bókay thinks that the cause of death in tuberculous meningitis is not so much the tuberculosis as such but that the patient dies after the process has extended over certain areas; that death is the result of the injury of certain centers by inflammation and pressure. Accordingly he decided to counteract not so much the general tuberculous infection but rather the local foci. Because in pulmonary tuberculosis and in tuberculosis of the bones he had obtained favorable results with high voltage roentgen irradiation, he decided to try it also in tuberculous meningitis. A trial seemed the more justified since in tuberculous meningitis the mortality rate is almost 100 per cent. The treatment consists of a thorough irradiation of the brain and of the medulla oblongata. This requires a high tensioned and strongly filtered radiation. In order to increase the deep dosage, the focus distance was taken as wide as possible. The quality of the rays was individually determined according to the patient's condition. The treatment was usually given on three successive days and when necessary also on the fourth and fifth days. The rays were applied successively on adjoining fields. The author gives detailed reports of five cases in which this treatment effected cure, but in twelve other cases it was ineffective. That five patients could be cured justifies a certain hopefulness, particularly in view of the fact that formerly the prognosis was almost entirely unfavorable. The author hopes that his procedure may be tried on a larger material. He admits that the high voltage roentgen irradiation also involves certain dangers, such as partial or total loss of hair, which, however, is usually reversible; but even if the alopecia should prove permanent, it would be a slight disadvantage compared to the life saving possibilities of the irradiation.

Klinische Wochenschrift, Berlin

11: 441-488 (March 12) 1932

Sites of Formation of Bile Pigments. F. Rosenthal.—p. 441.
*Thyroxine-Prolan Treatment of Obesity in Women with Early Amenorrhea. A. Schittenhelm and B. Eisler.—p. 446.
Modification of Sex Characters. O. O. Fellner.—p. 447.
Does Acute Aseptic Meningitis Belong to the Encephalitic Disorders? H. Knauer.—p. 449.
Sporadic Pellagra in Central Europe. A. Meyer.—p. 451.
Successful Palliative Treatment of Inoperable Hypophyseal Tumors. R. Demel.—p. 454.
*Experimental Contributions to Organ Anaphylaxis. I. Róth and B. Szauter.—p. 456.
Capillary Reaction in Carbon Dioxide Brine Bath. H. Scheiner.—p. 460.
*Nasal Pruritus in Cerebral Tumors. R. Wartenberg.—p. 461.
Iodine in Colloid of Hyophysis of Cattle. P. Noether.—p. 462.
Clinical Aspects of Addison's Disease. R. Schmidt.—p. 464.

Thyroxine-Prolan Treatment of Obesity in Women with Early Amenorrhea.—According to Schittenhelm and Eisler, prolan influences not only the ovaries but also the metabolism. They decided to employ it together with thyroxine for the reduction of obesity in women who also had menstrual disturbances, such as amenorrhea. The treatment was begun by giving for four days, three times daily, 3 mg. of thyroxine by mouth. Then the thyroxine was omitted and prolan was given instead, likewise by mouth (from 80 to 300 units). On

the basis of their observations the authors conclude that a rightly conducted thyroxine-prolan therapy is effective in that it not only reduces the obesity but also aids the return of the menstrual flow. However, in women with normal menstruation, they consider the use of prolan dangerous and therefore advise against its prolonged administration in such cases.

Experimental Contributions to Organ Anaphylaxis.—A review of the literature convinced Róth and Szauter that the type as well as the intensity of the anaphylactic shock differs according to the site of reinjection. That the typical anaphylactic shock is characterized by pulmonary symptoms is due to the fact that in the usual modes of injection the antigen comes first in contact with the capillary sphere of the lung. If, however, the site of reinjection is chosen so that the capillary sphere, which first comes in contact with the antigen, is not the lung, the symptoms are essentially different. The authors describe tests on guinea-pigs and on rabbits. In a first group of animals they produced anaphylaxis of cerebral character by intracarotid reinjection. The symptoms were loss of consciousness, tonoclonic spasms and typical cerebral symptoms. In a second group of animals, intrajugular reinjection was done and the pulmonary symptoms predominated. In a third group of animals, in which intraportal reinjection was done, there were changes in the secretion of the bile and in the function of the liver. These functional changes in the organs correspond to the anatomic changes that were found. In the cerebral anaphylaxis there were intensive hyperemia of the brain, and in some instances capillary hemorrhages. The hyperemia was usually most marked on the side on which the injection was made. After jugular reinjection, the anatomic changes were found mostly in the lung: emphysema with edema, pleural hemorrhages, and in one case even subpleural transudate. In intraportal reinjection the surface of the liver showed the lobular outlines plainly, because of the dilatation of the interlobular vessels.

Nasal Pruritus in Cerebral Tumors.—Wartenberg points out that it is frequently noted that patients with cerebral tumors rub the tips of their noses and their nostrils, because of an intense itching. He describes two cases of cerebral tumors, in both of which this symptom was noted. The beginning of the nasal pruritus concurs with the signs of increased cerebral pressure. The pathogenesis of this sign is as yet not definitely known, but the author assumes that it is the result of irritation of the trigeminus. A review of the literature proved that this symptom had been noticed by others, but the fact that in a recent monograph on brain tumors it is not mentioned, and also his two recent observations, induced him to call attention to it again.

Monatsschrift f. Geburtshülfe u. Gynäkologie, Berlin

90: 401-488 (March) 1932

*Basal Metabolism During Pregnancy Especially in Patients with Goiter: Influence on Thyroidal Function of the New-Born. V. Niederwieser.—p. 401.
Plastic Operation for Fat Abdomen. F. Kögler.—p. 412.
Anatomic Investigation on Human Amnion Following Dyestuff Diffusion. F. Speckmann.—p. 423.
Two Twin Monsters (Sternopagus and Dicephalus). H. J. Freyschmidt.—p. 429.
Interruption of Pregnancy by Means of Injection of Ointment: Its Dangers and Attempts to Overcome Them. H. Sellheim.—p. 441.
Preliminary Report on Ointment Method in Induced Abortion. J. T. Leunbach.—p. 446.

Basal Metabolism During Pregnancy in Patients with Goiter.—In an Alpine region where goiter is endemic, Niederwieser found that in pregnant women the basal metabolism is increased even if they do not have goiter. The average increase is about 15 per cent. The size of the goiter and its consistency have no noticeable influence on the basal metabolism, and the same can be said about the age of the gravida and the number of her confinements. However, there is a parallelism between the depth of respiration, which gradually increases with the advancing pregnancy, and the basal metabolism. The specific dynamic action is reduced during pregnancy, and the author thinks that this is due to the morphologic changes in the hypophysis. The goiter exerts no noticeable influence on the course of pregnancy. The thyroidal function of the new-born is influenced neither by the type and size of the mother's goiter nor by her basal metabolism.

Wiener klinische Wochenschrift, Vienna

45: 385-416 (March 25) 1932

Relations Between Hypophysis and Female Genital Tract. H. Heller.—p. 385.
Pulsatory Movements of Thoracic Wall in Normal Persons and in Those with Heart Disease. W. Dressler.—p. 387.
Gold Therapy of Tuberculosis. E. Waltuch and O. Weiss.—p. 394.
Blood Picture in Oxygen Deficiency. F. Asztalos, H. Elias and H. Kaunitz.—p. 397.
*Skin Reaction for Demonstration of Deep Gonorrheal Processes. J. Neuer.—p. 398.
Mechanism and Treatment of Central Dyspnea. A. Vogl.—p. 399.
Idem. R. Singer.—p. 399.
*Treatment of Primary Sciatica by Surgical Stretching of Sciatic Nerve. G. S. Toprower.—p. 400.
Prophylaxis and Therapy of Measles, Epidemic Meningitis and Poliomyelitis. A. Bratusch-Marrain.—p. 402.
Relapses Following Gallstone Operations. C. Ewald.—p. 404.
Forms and Treatment of Anuria. T. Hryntschak.—p. 405.

Skin Reaction for Demonstration of Deep Gonorrheal Processes.—According to Neuer, the recognition of acute deep gonorrheal processes is usually possible on the basis of the anamnesis and of the examination of smears. However, chronic deep processes are less readily recognized. The Müller-Oppenheim complement fixation method is helpful, but it often involves difficulties and for this reason the author devised a simpler method; namely, a skin test by means of an ointment, containing killed gonococci. After the skin of the upper arm has been cleaned with ether, it is scarified on three places. To one of the scarified areas only an indifferent substance is applied, and to the two others the ointment is applied. If the test is positive the reaction is most severe after twenty-four hours; there is inflammatory reddishness and formation of small pustules on the site of vaccination. After a day these manifestations begin to disappear. In negative cases, neither the sites of vaccination nor the control scarification show a reaction. It is advisable to have always at least two areas of scarification, the one for vaccination and the other one for control. The results that the author obtained with this test tallied with the complement fixation reaction.

Treatment of Primary Sciatica by Stretching of Sciatic Nerve.—Toprower points out that surgical stretching of the sciatic nerve was first recommended by Billroth. Later it was employed indiscriminately by some surgeons and thus it came into discredit and was almost entirely abandoned. The author takes the stand that in suitable cases it is of great therapeutic value. He thinks that in the beginning stage sciatica should receive conservative treatment. However, if within six months this treatment does not effect improvement, surgical stretching should be resorted to. From observations in twelve cases in which this treatment was employed, the author concludes that in cases of chronic primary sciatica surgical stretching of the nerve is effective. However, in typical neuritis of the sciatic nerve, with muscular atrophy and sensitiveness to pressure along the entire course of the nerve, and in diseases of the central nervous system, surgical stretching is not advisable.

Zeitschrift für Kinderheilkunde, Berlin

52: 431-618 (March 14) 1932

Galactorrhea in Nursing Mothers. A. N. Antonov.—p. 431.
Etiology, Prophylaxis and Serotherapy of Scarlet Fever. S. Zlatogoroff.—p. 442.
*Occurrence of "Tetanigenic Substance" in Urine of Spasmophilic Children. W. Hertz.—p. 452.
Digestion of Vegetables Used in Children's Diet. H. Langer.—p. 465.
*Influence of Vegetables on Nitrogen and Mineral Metabolisms of Children. E. Edelstein.—p. 483.
Types of Body Structures in Children and Their Calculation. Else Liefmann.—p. 504.
Generalized Sepsis in Nursling, Caused by Bacillus Suipestifer. H. Rau.—p. 510.
Chronic Syphilitic Bronchitis as Typical Manifestation of Late Syphilis in Children. J. Duken.—p. 512.
Myositis Ossificans Circumscripta as Result of Intramuscular Injection of Blood in Children. J. Duken.—p. 528.
Complicated Postencephalitic Tic in Children. F. von Bernuth.—p. 534.
*Actions of Viosterol on Organism, Particularly on Skeletal System of Rachitic Child. K. Strauss.—p. 556.
Sphygmographic Tests on Nurslings. E. Rominger and H. Meyer.—p. 577.
Egg-White Antibody Content of Blood of Eczematous Nurslings. P. Woringer.—p. 586.
Blood-Brain Barrier in Whooping Cough. Y. Yamaoka.—p. 594.

"Tetanigenic Substance" in Urine of Spasmophilic Children.—Hertz repeated Nitschke's experiments by which the latter had demonstrated in the urine of spasmophilic chil-

dren a substance that proved tetanigenic for rabbits. However, he was able to demonstrate the tetany toxin in only five out of eleven cases of spasmophilia. He thinks it probable that the diet of spasmophilic nurslings influences the outcome of the animal experiment but has as yet not proved it. With the urinary sediment of nonspasmophilic children, who had other disorders, it was possible to produce in six cases a reduction of the calcium content of rabbits. The age of the children is evidently of no importance in this connection. The substance that is tetanigenic for rabbits, therefore, does not necessarily have to produce spasmophilic symptoms in patients who eliminate it with their urine. Thus there is as yet no definite proof for a relation between tetany in infants and the artificial spasmophilic syndrome in rabbits. The solution of this problem depends on a better isolation of the tetany toxin postulated by Nitschke. So far it can only be said that in the urine of children with considerable disintegration of cells or with marked disturbance of the metabolism (among others also spasmophilia) a mixture of substances is eliminated which reduces the calcium content of the serum of rabbits and thus produces in these animals symptoms that indicate irritation of the nervous system.

Influence of Vegetables on Nitrogen and Mineral Metabolisms of Children.—Edelstein found that by adding spinach or carrots to the milk diet there is almost regularly a reduction in the retention of nitrogen, of ash, of calcium oxide and of phosphorus pentoxide. It is probable that the reduction in the retention is due to a lessened utilization in the intestine. In the influence on the retention there is no difference between fresh vegetables and canned vegetables. However, besides their influence on the utilization, the vegetables have yet other functions in the organism: they act as regulators by providing roughage and also are sources of vitamins.

Actions of Viosterol.—Strauss cites reports from the literature in which large doses of viosterol resulted in severe cachexia and death of the animals, and the necropsies revealed calcium deposits and degenerative processes in the vital organs. On the other hand, some experimenters noted a loss of calcium in the skeleton of animals fed with large doses of viosterol. In general, the injurious effects were noted only after excessive doses; however, they have also been noted after comparatively small doses. The author reports the case of a rachitic child, aged 18 months, to whom 100 mg. of viosterol had been administered in the course of two and one-half months. He describes the observations during the necropsy, particularly the calcification processes in the skeletal system. He noted that, as in the spontaneous cure of rickets, a new zone of calcification develops far toward the epiphysis, whereas the proliferated cartilage of the rachitic zone remains uncalcified. The osteoid trabeculae of the diaphysis and of the metaphysis calcify likewise to a considerable extent, but certain sections remain free from calcium. Later in the healing process new osteoid margins develop, which in regard to surface as well as depth far exceed the normal; that is, they still have some rachitic characteristics. The author discusses three possible explanations of the calcification process in the rachitic bone: (1) the humoral theory, (2) that perhaps the viosterol exerts a certain influence on the colloids by producing an increased calcium affinity, and (3) that the influence on the bone cell itself is the primary action of the viosterol.

Zeitschrift für Krebsforschung, Berlin

35: 543-650 (March 16) 1932

*Studies on Concentration of Active Carcinoma-Inducing Principle in Oils and Tars. C. C. Twort and J. D. Fulton.—p. 543.
Development of Granulation Tissues and of Tar Carcinomas in Animals Following Blockade of Reticulo-Endothelial System. A. Satoh.—p. 574.
So-Called Disseminated Carcinoma of Stomach: Attempt to Explain Its Pathogenesis. R. Ernst.—p. 585.
Precarcinosis and Pathologic Loss of Differentiation. C. S. Engel.—p. 610.
Value of Bendien's Flocculation Reaction for Diagnosis of Cancer. E. Meyer.—p. 622.
Biochemistry of Rous Sarcoma of Chickens. V. Morávek.—p. 626.
Immunity Experiments with Transplantable Rabbit Epithelium. W. A. Collier and A. Cohn.—p. 641.

Carcinoma-Inducing Principle in Oils and Tars.—Twort and Fulton show that carcinoma-inducing substances can be prepared synthetically from many organic substances. For the concentration of the carcinoma-inducing units in synthetic tars distillation is helpful, and to a certain extent distillation is also helpful for the concentration of the carcinoma-inducing units in mineral oils. Saturation by oxidation or reduction of agents of the nature of hydrocarbons apparently always reduces the carcinoma-inducing units. The action of organic enzymes is doubtful; it appears that living yeast cells reduce the number of carcinoma-inducing units, probably because they act as reductases. Filtration of an oil through silicic acid gel or through clay reduces the carcinoma-inducing units in the filtered as well as in the remaining substance, and it is probable that adsorption and polymerization are the most important factors. The action of ultraviolet rays and of radon reduces the carcinoma-inducing units. Methyl sulphide, trinitrophenol and alcohol primarily extract the carcinoma-inducing substances and their accompanying defense substances. Treatment of mineral oils with sulphuric acid reduces their carcinoma-inducing units. Mercury acetate in acid solution reduces the number of carcinoma-inducing units, whereas the neutral solution exerts only a slight influence. Attempts were made to determine the amount of carcinoma-inducing units in liquid petrolatum by physical and by chemical means. Among the various procedures that were tried, the specific gravity, the refractive index and the iodine number were found to be the best indicators, but there may yet be other methods that may prove helpful. The authors think that it may eventually be possible to dispense with the use of animals for testing the carcinoma-inducing action of oils.

Zentralblatt für Gynäkologie, Leipzig

56: 705-768 (March 19) 1932

Embryonal Development, Time of Conception and of Ovulation. O. Grosser.—p. 706.
Determination of Term of Ovulation on Human Uterus in Situ. H. Knaus.—p. 710.
Reply to Preceding Article. K. F. Schultze.—p. 720.
*Term of Conception in Woman and Its Practical Significance. K. Ogino.—p. 721.
Spermatozoon and Serum of Pregnant Women. H. Lotze and W. Schultz.—p. 732.
*Ligation of Uterine Vessels in Hemorrhages in Placenta Praevia. W. Kerwin.—p. 741.
Reliable Hemostatic Methods in Dangerous Cases. G. Frank.—p. 744.
New Self-Holding Vaginal Speculum. H. Högler.—p. 747.

Term of Conception in Women.—From careful studies, Ogino concludes that the term of conception as a rule lasts eight days. It extends from the nineteenth to the twelfth day before the succeeding menstruation. In the time between the twenty-fourth and twentieth day before the next menstruation, a conception is extremely rare, but there are as yet not sufficient observations to exclude the possibility of a conception during these four days; because of the rarity of conception during this period, however, it can be considered as practically sterile. But during the eleven days before the onset of the next menstruation conception is impossible. The author thinks that the determination of these factors will enable women who have to practice sexual abstinence or resort to contraceptives to do without these at least during some periods. For practical purposes it is advisable to determine the period of conception from the onset of the last menstruation. If the cycle lasts twenty-eight days the time of conception is between the tenth and seventeenth day after the onset of the last menstruation. If the cycle is longer or shorter than twenty-eight days, the term of conception is shifted by so many days backward or forward. Since there are comparatively few women in whom the menstrual cycle is always of the same duration, the formula for the time of conception has to be expressed as follows: Beginning of term of conception is ten plus (minimal duration of cycle minus twenty-eight days). End of term of conception is seventeen plus (maximal cycle minus twenty-eight days). The maximal and minimal duration of the cycle have to be determined from the last twelve series of cycles; to take into account only three or four cycles is not sufficient. However, since most women do not keep a record of their menstrual cycles, they have to give the maximal and minimal duration from memory. The formula mentioned is of value only for women in whom the menstrual cycle has a maximal fluctuation of not more than ten days. The greater the fluctuations, the lesser the value of the formula.

Ligation of Uterine Vessels in Hemorrhages in Placenta Praevia.—In anatomic hemorrhages or in hemorrhages caused by tears following vaginal delivery in placenta praevia, Kerwin recommends bilateral ligation of the uterine vessels

through the vaginal wall. The method does not require special instruments but only those that every obstetrician has at his disposal. By means of a large round needle a strong catgut thread is introduced into the parametrium, where the vaginal wall meets the cervix. The point of the needle is directed upward toward the uterus and comes out again through the vaginal wall 3 cm. lower. The suture is tied, and the same procedure is repeated on the other side. The vaginal wall remains unimpaired except for the opening at which the needle entered. The hemorrhage ceases immediately after the second ligation is completed. Nine women, who were threatened by death from severe hemorrhage, were saved by this method. Two of them have since had spontaneous deliveries. The method is suitable for the clinic as well as for obstetrics in the home.

Nowotwory (Néoplasmes), Warsaw

6: 145-256, 1931

Cystadenoma of Pancreas. E. Schlönvogt.—p. 145.
Chloroma. J. Stein.—p. 159.
*Influence of Internal Secretions on Experimental Malignant Tumors. W. Karnicki.—p. 174.
Carcinoma in Young Adults. K. Kosieradzki.—p. 193.
Tumors: Polish Bibliography for Second Semester of 1930. A. Czyżewicz. —p. 223.

Internal Secretions and Experimental Malignant Tumors.—Karnicki investigated eight series of experimental rabbits, besides the control series, in order to find the relation between the internal secretions and experimental carcinoma. Gas tar was used as an irritant. The rabbits in the eight series were subjected to (1) thymusectomy, (2) thyroidectomy with unilateral parathyroidectomy, (3) testectomy, (4) unilateral suprarenalectomy, (5) thymusectomy combined with testectomy, (6) implantation of thymus and testes, (7) experimental carcinoma plus injections with extracts from the previously excised glands, and (8) hypophysectomy. The animals of the eighth series did not survive the operation. The results reported by the author were as follows: 1. The glands of internal secretion have an influence on the genesis and development of experimental carcinomas in rabbits. 2. Thymusectomy accelerates the appearance of experimental tumors in the relation of 4 to 1. 3. Thyroidectomy with unilateral parathyroidectomy hastens also the formation of tumors in the relation of 3 to 1. 4. Testectomy produces less acceleration than thyroidectomy with unilateral parathyroidectomy and considerably less than thymusectomy. 5. After unilateral suprarenalectomy there is a marked retardation of both the appearance and the growth of tumors. 6. The acceleration of the appearance of tumors after thymusectomy combined with testectomy in the same animal is marked. 7. Implantation of thymus and testes considerably retards the appearance of tumors. 8. Injections of extracts from thymus and testes cause dehydration and breakdown of tumors, also shrinkage of the larger nodules and destruction of the smaller ones. The large nodules soften in the later phases of the injection periods. From this time on, even increased doses do not cause further reduction of the nodules. After the injections have been suspended, also, further growth does not follow.

Polska Gazeta Lekarska, Lwów

11: 193-212 (March 13) 1932

New Biologic Tests for Pregnancy. B. Stępowski.—p. 193.
Hydrogen Ion Concentration on Surface of Skin (C'cn.). J. Stopczański. —p. 195.
*Round Basophilic Bodies in Splenic Pulp in Gaucher's Disease. A. Sokołowski.—p. 197.
Postoperative, Histologic Diagnosis of Orbital Gumma. A. Musiał.—p. 200.
Medical Reports on Social Medicine. J. Szumski.—p. 202.

Basophilic Bodies in Gaucher's Disease and Value of Sternal Puncture.—In the case of Gaucher's disease described by Sokołowski, the material obtained by splenic puncture was stained by several methods. The most distinct preparations came out when the May-Grünwald-Giemsa method was used. In these preparations there were, besides the known cells, minute, roundish, granular bodies, basophilic, scattered more or less in groups, and occasionally surrounding the roundish nuclei. In the specimen from the sternal bone marrow were found certain cells, corresponding completely in every detail with the cells described in preparations from the splenic pulp and known as Gaucher's cells. The author concludes that: 1. For diagnostic purposes in suspected Gaucher's disease it may not be necessary to perform splenic puncture as long as the sternal (manubrium) bone marrow contains the material, with abundance of characteristic cells. 2. The basophilic bodies described represent a detail which contributes to the symptomatology of Gaucher's disease.

Hospitalstidende, Copenhagen

75: 299-326 (Feb. 11) 1932

*Course of Complement Fixation Reaction in Gonorrhea in Men. V. Genner, K. Antons, and H. Boas.—p. 299.
*Blood Sedimentation and Basal Metabolism. G. Bredemose.—p. 319.
Case of Fatal Genital Gangrene. G. Bindslev.—p. 322.

Course of Complement Fixation Reaction in Gonorrhea in Men.—Genner and his associates made complement fixation tests in sixty-six patients with gonorrhea during the disease and in most cases after clinical recovery. They say that in epididymitis and in arthritis with acute onset the reaction rises rapidly according to the clinical acuity, often reaching the maximum in the course of a week, and falls slowly, usually becoming negative in from six months to two years, somewhat sooner in epididymitis than in arthritis. In prostatitis the rise is less rapid and the reaction apparently remains positive somewhat longer than in epididymitis. The reaction is a valuable supplement in cases with doubtful exploratory results and seems to show that many cases regarded as posterior urethritis are really instances of latent prostatitis. A positive reaction occurred in a small number of control cases; such cases the authors would for the present designate, not as "nonspecific," but as "cases with positive gonorrhea reaction as the only symptom."

Blood Sedimentation and Basal Metabolism.—Bredemose finds that the sedimentation reaction recommended by Goldmann and Taterka as preferable to basal metabolism tests for determining the therapeutic effect in cases of hyperthyreosis and hypothyreosis is without practical value for this purpose.

75: 327-370 (Feb. 18) 1932

*Malignant Trigeminal Neuralgia: Treatment with Radical Operation. F. Djørup.—p. 327.

Malignant Trigeminal Neuralgia.—In the sixty-eight severe cases reported in detail by Djørup, the condition, mostly of many years' standing, was so resistant to all other operative measures and to the various medicinal treatments that resection of the gasserian ganglion or retrogasserian neurotomy became necessary as a last resort. Forty-one patients (thirty operated on during the last five years, eleven more than five years ago) are without pain, although in twenty of these primary or secondary complications cause a certain inconvenience; seven are improved, ten unchanged and ten dead. He considers it more and more evident, in spite of the occurrence of complications and the technical difficulty of the operation, that retrogasserian neurotomy is about to become the safest and best means of operative treatment in malignant trigeminal neuralgia in its gravest forms.

75: 371-398 (Feb. 25) 1932

*Postoperative Phlebitis, Thrombosis and Embolism. E. Dahl-Iversen and E. Ramberg.—p. 371.

Postoperative Phlebitis, Thrombosis and Embolism.—A study made by Dahl-Iversen and Ramberg of 18,168 operative cases with 636 cases of postoperative phlebitis, thrombosis and embolism shows no increase in these complications during the last twenty years. According to the present status of knowledge, they assume that the origin of thrombosis after aseptic operative treatment depends on the interplay of three factors: (1) changes in the blood plasma and in the relation of the formed elements, (2) retarding of the blood stream, and (3) probable changes in the endothelial cells of the blood vessels. For prophylaxis they advise reduction of the cell degeneration accompanying every operation by careful hemostasis, avoidance of contusion of the tissue in the operative field, and inclusion of as little tissue as possible in the ligatures; in preoperative treatment, reduction of the loss of fluids in the organism, avoidance of unnecessary inanition, administration of large quantities of fluids, and exercises in deep respiration and in movement of the patient in bed; in postoperative treatment, application of the same principles as in preparatory treatment. Compression bandages on the lower extremities and elevation of the foot of the bed are also recommended.